QMS®
3825/3225/2025 Print System Administrator's Guide

1800367-001B

Trademarks

QMS, QMS-PS, imPRESS, QUIC, Crown, the Crown logo, and the QMS logo are registered trademarks of QMS, Inc. registered in the United States Patent and Trademark Office. PostScript is a trademark of Adobe Systems, Incorporated for a page description language and may be registered in certain jurisdictions. Throughout this manual, “PostScript Level 2” is used to refer to a set of capabilities defined by Adobe Systems for its PostScript Level 2 page description language. These capabilities, among others, are implemented in this product through a program designed and developed by QMS which is compatible with Adobe's PostScript Level 2 language. Macintosh, AppleTalk, and LocalTalk/Apple Computer, Inc. HP, HP PCL, and HP-GL are registered trademarks of Hewlett-Packard Company. DEC, DECnet, LN03, and VMS are registered trademarks of Digital Equipment Corporation. UNIX/UNIX Systems Laboratories.

Proprietary Statement

The digitally encoded software included with your QMS 3825/3225/2025 Print System is Copyrighted © 1995 by QMS, Inc. All Rights Reserved. This software may not be reproduced, modified, displayed, transferred, or copied in any form or in any manner or on any media, in whole or in part, without the express written permission of QMS, Inc.

Copyright Notice

This manual is Copyrighted © 1995 by QMS, Inc., One Magnum Pass, Mobile, AL 36618. All Rights Reserved. This manual may not be copied in whole or in part, nor transferred to any other media or language, without the express written permission of QMS, Inc.

Manual Notice

QMS, Inc. reserves the right to make changes to this manual and to the equipment described herein without notice. Considerable effort has been made to ensure that this manual is free of inaccuracies and omissions. However, **QMS, Inc. makes no warranty of any kind including, but not limited to, any implied warranties of merchantability and fitness for a particular purpose with regard to this manual**. QMS, Inc. assumes no responsibility for, or liability for, errors contained in this manual or for incidental, special, or consequential damages arising out of the furnishing of this manual, or the use of this manual in operating the equipment, or in connection with the performance of the equipment when so operated.

Contents

1 Introduction

How to Use this Manual 1-2
Typographic Conventions 1-3

Shipment Contents 1-4

QMS Product Registration 1-5

Configuring the QMS 3825/3225/2025 Print System 1-5

Methods of Configuration 1-5
Configuration for Individual Jobs 1-6
Configuration for Departmental Use 1-7

Before You Begin 1-8
Printing a Status Page 1-8

The Configuration Menus 1-9

Changing Default Configuration Settings 1-11

Selection of Choices 1-11
Alphanumeric Values 1-13

Saving Printer Configuration Changes 1-14

Upgrading Print System Software 1-15
Using the Printer's Floppy Disk Drive 1-16
Using the Parallel Port 1-19

2 Installation Menu

Introduction 2-2

Keypad Language 2-2

Passwords 2-3
Setting Passwords 2-3
Using Passwords 2-3

3 Operator Control Menu

Introduction 3-2

Copies 3-2

Duplex 3-3

Tumble Duplex 3-3

Collation 3-4

Orientation 3-4

Inputbin 3-5

Outputbin 3-6

Chain Inputbins 3-7

Crown Accounting 3-7
Accounting Menu 3-8
Job Accounting Files 3-11
Accounting File Format Description 3-12
Accounting Files Description of Fields 3-13

Copying the Accounting Files 3-21
Processing Accounting Information on the Host 3-23

4 Administration/ Communications Submenu

The Communications Submenu 4-2

Timeouts 4-3
PS Wait Timeout 4-3
Emul Timeout 4-4
Job Timeout 4-4
ESP Timeout 4-4

Serial Communication 4-5
Mode 4-6
Emulation 4-6
Min K Spool 4-6
Spool Timeout 4-6
End Job Mode 4-7
Def Job Prio 4-7
Baud Rate 4-7
Parity 4-7
Ignore Parity 4-8
Rcv Sw Flow Ctl 4-8
Xmit Sw Flow Ctl 4-8
Data Bits 4-8
Stop Bits 4-8
Hdwe Flow Ctl 4-9
PS Protocol 4-9

Parallel Communication 4-11
Mode 4-11
Emulation 4-11
Min K Spool 4-12
Spool Timeout 4-12
Data Bits 4-12
End Job Mode 4-12
Def Job Prio 4-13
PS Protocol 4-13

AppleTalk Communication 4-15
Mode 4-15
Connection 4-16
Min K Spool 4-16
Def Job Prio 4-16

Optional Interface 4-16

5 Emulations Submenu

The Emulations Submenu 5-2

ESP Default Option 5-3

PCL 5 5-4
Default Font 5-5
Symbol Set 5-5
Lines/Inch X100 5-5
Line Termination 5-6
Point Size X100 5-6
Retain Temporary 5-6
Scalable Fonts 5-6
Default Font Idx 5-7
Monochrome GL/2 5-7
Downld Location 5-7

LN03 Plus 5-8
Product ID 5-8
Autowrap 5-8
Paper Size 5-9
Paper Override 5-9
X-Origin Inset 5-9
Y-Origin Inset 5-9
Reset Override 5-9
Orientation 5-10

PostScript 5-10

Lineprinter 5-11
Font 5-12
Point Sz 100ths 5-12
Character Map 5-12
Line Numbering 5-12

Tab Stops 5-12
LF IS CRLF 5-12
CR IS CRLF 5-13
FF IS CRFF 5-13
Orientation 5-13
Autowrap 5-13
Lines Per Page 5-13
Margins 5-13

HP-GL 5-14
Plotter 5-14
Scaling Percent 5-15
Origin 5-15
Reverse Image 5-15
Enhanced Mode 5-15
Expand Mode 5-16
Paper Type 5-16
Pens 1-8 5-16

CCITT Groups 3 and 4 5-17
CCITT Commands 5-17
Command Syntax 5-17

imPRESS 5-24

Optional Emulations 5-24

6 Special Pages and Startup Options Submenus

The Special Pages Submenu 6-2
Calibration Page 6-2
Header Page 6-3
Header Inputbin 6-3
Trailer Page 6-3
Trailer Inputbin 6-4
Status Page Type 6-4

The Startup Options Submenu 6-5
Do Start Page 6-5
Do Sys Start 6-5

Do Error Handler 6-6

7 Memory Submenu

Introduction 7-2
QMS Memory Management 7-2

QMS Memory Definitions 7-3

Evaluation of Your Printing Environment 7-5
Printer Features and Memory Clients 7-6

Memory Submenu 7-8

Memory Clients 7-8
Spool Buffers 7-9
PS Heap 7-10
PostScript Font Cache 7-10
Emulation 7-11
Temporary Emulation 7-12
Display List 7-12
Disk Cache 7-13
Frame Buffer 7-14
MB Printer Mem 7-14
System Memory 7-14

8 Engine, Miscellaneous, and Disk Operations Submenus

Engine Submenu 8-2
Image Alignment 8-3
Default Paper 8-5
Input Bin and Output Bin Names 8-5
Toner Low Action 8-5
Offset Stacking 8-5
Gamma Correction 8-6
Letterhead 8-6

Rotate Duplex 8-7
Resolution 8-8
Print Mode 8-8
Powersave Mode 8-8
Maintenance Due 8-8

Miscellaneous Options 8-9
Restore Defaults 8-9
Clock Operations 8-10
Printer Name 8-10
Printer Type 8-10

The Disk Operations Submenu 8-11
Identifying Hard Disks 8-11
Installing Optional Fonts and Emulations 8-12
Removing Fonts and Emulations 8-15
Formatting a Disk 8-16
Backing Up the Hard Disk 8-17
Restoring the Hard Disk 8-18

A QMS Customer Support

Sources of Support A-2
Your QMS Vendor A-2
Your Application Vendor or Manufacturer A-2
Q-FAX A-2
QMS Corporate Bulletin Board System A-3
CompuServe A-3
Internet A-3
QMS Customer Technical Assurance (CTA) A-4
QMS National Service Telephone Numbers A-4

QMS World-wide Offices A-5

B Cable Pinouts

LocalTalk B-2

Serial B-2

IBM PC/XT, PC/AT, and Compatible Computers B-3

Centronics Parallel B-3
Notes to the Centronics Parallel Cable
Pinouts Table B-4

Index

❖

1

Introduction

In This Chapter . . .

- How to use this manual
- Configuring the printer
- Methods of configuration
- Printing a status page
- The configuration menus
- The control panel keys
- Changing default settings
- Installing system software upgrades

How to Use this Manual

This manual is designed to help you, the system administrator, customize printer configuration with as little trial and error as possible.

- **Chapter 1 - Introduction**

  This chapter introduces the printer and the configuration menu structure and explains how to upgrade system software.

- **Chapter 2 - The Installation Menu**

  This chapter explains how to use the Installation menu to establish password protection for the Operator Control and Administration menus, and how to set the message window language.

- **Chapter 3 - The Operator Control Menu**

  This chapter explains the set-up options in the Operator Control menu, which control the printer's paper handling features, such as the number of copies and whether collation is enabled. This chapter also describes the printer-based accounting features.

- **Chapter 4 - Administration/Communications Submenu**

  This chapter explains the host-printer communication configuration options in the Administration menu.

- **Chapter 5 - Administration/Emulations Submenu**

  This chapter explains the configuration options in the Emulations submenu of the Administration menu.

- **Chapter 6 - Administration/Special Pages and Startup Submenus**

  This chapter covers options in the Special Pages and Startup Options submenus of the Administration menu, which control the printing of special-purpose pages and printer start-up options.

- **Chapter 7 - Administration/Memory Submenu**

  This chapter explains memory configuration. Read this chapter for instructions on customizing memory to achieve the most productive use of the printer in your printing environment.

- **Chapter 8 - Administration/Engine, Miscellaneous, and Operations Submenus**

  This chapter explains the configuration options in the Engine, Miscellaneous, and Disk Operations submenus of the Administration menu. These options control the printer's image alignment and input and output bin names, specialized duplexing options, and the use of optional printer hard disk(s).

The appendixes to this manual cover QMS Customer Support and cable pinouts.

Typographic Conventions

The following typographic conventions are used in this manual:

`Mixed-Case Courier`	Text you type, and messages and information displayed on the computer monitor
`Mixed-Case Italic Courier`	Variable text you type; replace the italicized word(s) with information specific to your printer or workstation
UPPERCASE COURIER	Information displayed in the printer message window
Mixed-Case bold	QMS Document Option Commands (DOC)
lowercase italic	Variable information in text
UPPERCASE	File and utility names

» Note: Notes contain tips, extra information, or important information that deserves emphasis or reiteration.

Caution: Cautions present information that you need to know to avoid equipment damage or extreme annoyance.

WARNING! Warnings indicate the possibility of personal injury if a specific procedure is not performed exactly as described in the manual.

ACHTUNG! Bitte halten Sie sich exakt an die im Handbuch beschriebene Vorgehensweise, da sonst Verletzungsgefahr bestehen könnte.

Shipment Contents

Your shipment contains the following:

- The QMS 3825/3225/2025 Print System
- The *QMS 3825/3225/2025 Print System User's Guide*
- The *QMS 3825/3225/2025 Print System Administrator's Guide*
- The PS Executive Series Utilities on disk
- Two binders
- The *QMS Crown Document Option Commands* manual
- The *LN03 Plus Emulation for QMS Printers* manual
- The *QMS Crown Network Notes* on disk
- The *QMS imPRESS Programming Language* guide on disk
- Two paper cassettes (8.5" x 11" and 11" x 17", or A4 and A3)
- A toner cartridge
- An OPC drum
- A cleaning unit
- System software disks
- A power cord
- A warranty card

If you find any part of the shipment missing or damaged, contact the shipping company or your vendor immediately. Do not return any merchandise to QMS without authorization.

QMS Product Registration

QMS is committed to developing print systems that offer you flexible, efficient solutions, so we're interested in knowing how you plan to use your printer. Register it now, and we'll send you a special gift.

To register by mail, fill out and send in your warranty card. To register by telephone, in the US call QMS toll-free at (800) 637-8049. In other countries, refer to appendix A, "QMS Customer Support," for the appropriate telephone number.

Configuring the QMS 3825/ 3225/2025 Print System

This manual guides you through the process of configuring the printer options to meet your unique printing requirements. As with any network printer, one setting for any particular printer option may not meet the needs of every user. As you are configuring the printer, try to pick the setting that meets the needs of most of the users.

Methods of Configuration

There are five major ways to configure your printer for your needs — some appropriate for users and some only for system administrators .

Users configure options one job at a time using these methods:

- An application
- PS Executive Series Utilities
- QMS Document Option Commands

System administrators configure the printer to meet the needs of an entire department through these methods:

- The printer control panel
- A remote console, for network users only

Configuration for Individual Jobs

Using an Application

Using an application is the best way for individual users to get the results they want from the departmental printer. This helps prevent confusion in network environments and saves unnecessary changes at the printer control panel. Your application documentation explains how to control printer settings: probably by choosing options from a printing menu.

Applications use printer drivers to send the appropriate commands to the printer. If your application doesn't have a QMS 3825/3225/2025 Print System driver, you can select a comparable PostScript driver, such as another QMS driver or a LaserWriter driver. However, comparable drivers may not allow access to all of your printer's features. For best results, use the driver that accompanied your new printer.

Using PS Executive Series Utilities

You can also use the PS Executive Series Utilities (shipped with your printer) to control the printer from your host. See the README file on the utilities disk for information on installing the utilities, and see the utilities' on-line help for details on using the software.

Using QMS Document Option Commands

The QMS 3825/3225/2025 Print System provides a powerful feature that can accommodate your requests (and the requests of any other user on the network) without affecting the printer configuration for other print jobs. This feature is the set of QMS Document Option Commands or QMS DOC.

With QMS DOC, you can add commands to the beginning of your files that, when interpreted by the printer, turn on specific file processing or document handling features available on the printer. Use QMS DOC to specify an emulation, select a specific input bin or paper size,

select duplex (double-sided) or simplex (single-sided) printing, select page orientation and backgrounds, use number-up and booklet printing, and more. The features you select and the QMS DOC you use at the beginning of your file take effect only for the current print job. After your file prints, the QMS DOC commands added to the beginning of the next file take effect for it. If no QMS DOC appears on the next file, the printer's default values resume.

QMS DOC is the key to making the QMS 3825/3225/2025 Print System a true departmental printer. The *QMS Crown Document Option Commands* manual, included with your printer, gives complete information on using the commands. Appendix C in your user's guide, "Document Option Commands," lists all the QMS DOC your printer supports, plus instructions for using new and revised commands.

Using Other Printer Commands

PostScript operators and HP-GL and HP PCL commands can enable job-specific features your application or page description language can't access. See the *PostScript Language Reference Manual* (Adobe Systems, Inc., Reading, MA: Addison-Wesley, 1990, ISBN 0-201-18127-4) and the *PCL 5 Printer Language Technical Reference Manual* (Hewlett-Packard part number 5961-0509) for further information.

Configuration for Departmental Use

Using the Control Panel

QMS printers are configured at the factory for the most typical printing environments, so most users don't have to use the control panel often. However, if you do need to change a printer setting for all print jobs (not just on a per-job basis), you can do so through the control panel. In a shared printing environment, only the system administrator should make changes though the printer's control panel.

Using a Remote Console

Most of the configuration choices that can be made at the control panel can also be made through a remote console in many network

environments. To avoid confusion in a shared printing environment, only the system administrator should make configuration changes.

Before You Begin

Before you start configuring the printer, you should have the following:

- A security disk. This disk allows you to set passwords for the printer set-up menus, and to set the message window language (English, French, German, or Spanish).
- A status page. The status page lists the current default settings for many of the printer options. Factory defaults are listed in appendix D, “Factory Default Settings,” of the user’s guide, but a status page shows current settings and serves as a reference so you can always reset your printer to its most recent settings.

Printing a Status Page

There are two types of status page, standard and advanced. The standard status page includes the following items on one page:

- Printer identification (the printer’s name, release information, number of sheets printed)
- Printer settings (printer set-up options for paper handling)
- Current memory configuration (printer memory settings)
- Timeouts (printer timeout settings)
- Communications settings and input buffer sizes (settings for printer-host communication, including spooling memory sizes)
- Hard disk status (list of installed hard disks currently on line)
- Angle bracket, one-half inch from the bottom-left corner of the page, for use in image alignment.

The advanced status page prints multiple pages with the current menu configuration settings and font information in addition to the standard status page information.

To select which type of status page to print, see “Status Page Type” in the Special Pages submenu in chapter 6. After setting which type of status page to print, press the Status Page key to print a status page.

The Configuration Menus

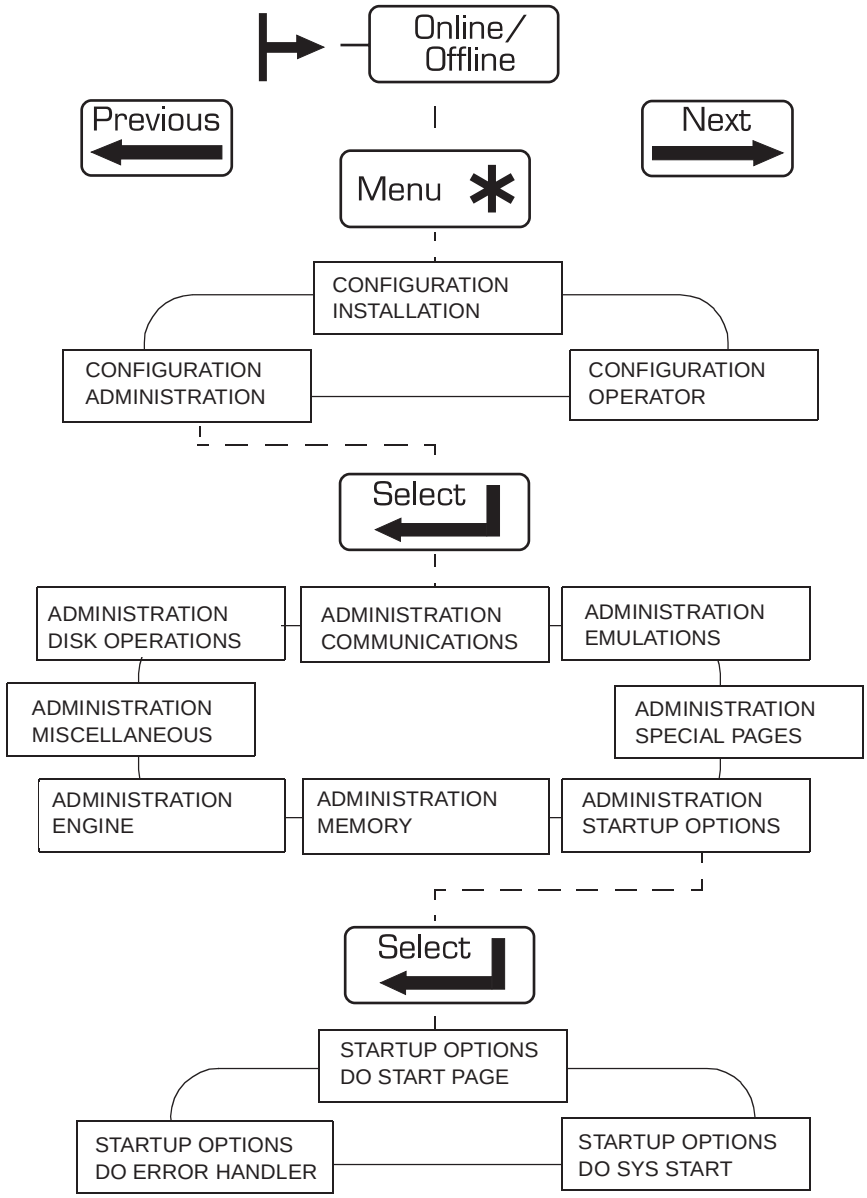
The Configuration menu is divided into three main menus: Installation, Operator Control, and Administration.

- The Installation menu, which appears only when the security disk is inserted in the printer’s disk drive, is used to establish passwords for the Operator Control and Administration menus, and to set the message window language.
- The Operator Control menu controls the default settings of most printer features.
- The Administration menu is the largest of the three menus. It controls the default settings of printer-host communications, emulations, and other document-processing features.

Menus are arranged in a hierarchy as shown on the next page. To access the configuration menu:

- Press the Online/Offline key to take the printer off line.
- Press the Menu key to access the menu.

The top line of the message window displays the current menu level, and the second line displays the first available option. Move down one level by pressing the Select key. The Next and Previous keys change the displayed option in the message window for the current menu level. The options in each level are arranged in a loop, so repeatedly pressing either the Next or Previous key returns you to the option starting point.


Online/ Offline
Previous
Next
Menu *
CONFIGURATION INSTALLATION
CONFIGURATION ADMINISTRATION
CONFIGURATION OPERATOR
Select
ADMINISTRATION DISK OPERATIONS
ADMINISTRATION COMMUNICATIONS
ADMINISTRATION EMULATIONS
ADMINISTRATION MISCELLANEOUS
ADMINISTRATION SPECIAL PAGES
ADMINISTRATION ENGINE
ADMINISTRATION MEMORY
ADMINISTRATION STARTUP OPTIONS
Select
STARTUP OPTIONS DO START PAGE
STARTUP OPTIONS DO ERROR HANDLER
STARTUP OPTIONS DO SYS START

Changing Default Configuration Settings

There are two types of printer menu options: those that require you to choose from a selection of possible choices and those that require you to enter an alphanumeric value. Many default settings may never need changing.

Selection of Choices

If an option has choices, the second line of the message window displays each choice one at a time. To view all the possible choices for that option, press the Next key repeatedly. The menu cycles through all the choices for that option. The Administration/Communications/Serial/Baud Rate menu is an example of an option with a selection of choices. The following example shows how to change the baud rate for serial communication:

1 **Press the Online/Offline key to take the printer off line.**

2 **Press the Menu key. The message window displays**

```
CONFIGURATION
OPERATOR CONTROL
```

3 **Press the Next key until** `ADMINISTRATION` **displays on the second line of the message window:**

```
CONFIGURATION
ADMINISTRATION
```

4 **Press the Select key. This opens the Administration menu.** `ADMINISTRATION` **now displays on the first line of the message window:**

```
ADMINISTRATION
COMMUNICATIONS
```

5 **Press the Select key again. This opens the Communications menu.** COMMUNICATIONS **now displays on the first line of the message window:**

```
COMMUNICATIONS
TIMEOUTS
```

6 **Press the Next key until** SERIAL **displays on the second line:**

```
COMMUNICATIONS
SERIAL
```

7 **Press the Select key to open the Serial submenu:**

```
SERIAL
MODE
```

8 **Press the Next key until** BAUD RATE **displays:**

```
SERIAL
BAUD RATE
```

9 **Press the Select key. The first choice in the set of baud rate values displays on the bottom line. This value is also the current default setting:**

```
BAUD RATE
*9600
```

10 **Press the Next key until the value you want (for example, 2400) displays:**

```
BAUD RATE
2400
```

11 **Press the Select key. The message window displays a confirmation message for three seconds:**

```
2400
IS SELECTED
```

12 **Then, the message window displays the option's name:**

```
SERIAL
BAUD RATE
```

You have now changed the baud rate to 2400. The change does not

take effect until you save the changes and place the printer back on line. Review “Saving Printer Configuration Changes” later in this chapter.

Alphanumeric Values

When an option requires a value, you enter the value one digit or character at a time. You use the Next and Previous keys to increase or decrease the displayed character or digit value. Spaces can also be used when a value, such as a password, must be an exact number of characters. The Copies option in the Operator Control menu is an example of an option that requires a value. The following instructions show how to change a value:

1 **Press the Online/Offline key to take the printer off line.**

2 **Press the Menu key. The following message displays in the message window:**

```
CONFIGURATION
OPERATOR CONTROL
```

3 **Press the Select key to open the Operator Control menu.** `OPERATOR CONTROL` **now displays on the first line of the message window:**

```
OPERATOR CONTROL
COPIES
```

4 **Press the Select key again to display the current value:**

```
COPIES
001
```

5 **Notice that the first digit is flashing. (The default copy count is 1.) You may select any number of copies up to 999. For this example, we are setting the copy count to 159.**

6 **Press the Next key once. The first digit changes from 0 to 1. Press the Select key.**

```
COPIES
101
```

7 **The second digit is now flashing. Press the Next key until the second digit changes to 5. Press the Select key.**

```
COPIES
151
```

8 **The third digit is now flashing. Press the Previous key until the last digit changes to 9.**

```
COPIES
159
```

9 **Press the Select key. The message window momentarily confirms the change you have made:**

```
159 COPIES
IS SELECTED
```

Then the message window displays the option's name again.

You have now changed the copy count to 159 copies per print job. The change does not take effect until you save the change and place the printer back on line. Review the next section, "Saving Printer Configuration Changes."

Saving Printer Configuration Changes

Whenever you change a printer menu option, the printer prompts you to save the change before you place the printer back on line. Saving a menu change means that the new value of the option is recorded and stored in the printer's memory. Once stored in memory, the value takes effect automatically whenever the printer is turned on. Follow these steps to save your configuration changes:

1 **Press the Online/Offline key. The following message displays in the message window:**

```
SAVE CHANGES?
NO
```

2 **If you want to save all the configuration changes you have made, press the Next key (the message window displays** YES **on the second line), and then press the Select key. Your changes take effect when you press the Online/Offline key again.**

3 **If you do not want to save your changes, just press the Select key to select NO. Press the Online/Offline key again.**

If you ever save a menu change that you did not want to save, you can always go back into the configuration menu and change it back to the previous setting. There is also an option for resetting all menu options to their factory default settings (see “Restore Defaults” in chapter 8, “Engine, Miscellaneous, and Disk Operations.”).

» Note: Some Administration menu changes do not take effect until the printer is restarted. Some changes cause the printer to reboot automatically. Others cause the message

```
REBOOT NOW?
*YES
```

» Note: to appear in the message window. Press the Select key to reboot the printer, or the Next and Select keys to choose NO and postpone your configuration changes until the printer is restarted.

Upgrading Print System Software

Print system software upgrades for the QMS 3825/3225/2025 Print System are supplied on 3.5" 1.44 MB disks. Installing system software upgrades requires copying the contents of the disks to the printer’s internal hard disk from the printer’s floppy disk drive or

through the parallel port. (To install through the parallel port you must have the QMS system software loaded on your host computer). Both procedures are explained in this section.

Using the Printer's Floppy Disk Drive

To install system software upgrades via the printer's floppy disk drive, follow these instructions:

1 **Turn the printer off and then on again. The following message displays in the message window:**

```
QMS SOFTLOAD x.x
READY TO BOOT
```

2 **Once this message appears, you have 10 seconds to press the Select key. When you press the Select key, the following message appears in the message window:**

```
QMS SOFTLOAD x.x
BOOT SYSTEM
```

» *Note: If more than 10 seconds pass before you press the Select key, the IDLE message appears. You must return to step 1.*

3 **Press the Next key until** `INSTALL TO DISK` **appears on the second line of the message window:**

```
QMS SOFTLOAD x.x
INSTALL TO DISK
```

4 **Press the Select key to enter the Install to Disk submenu. The following message appears in the message window:**

```
INSTALL TO DISK
DISKETTE
```

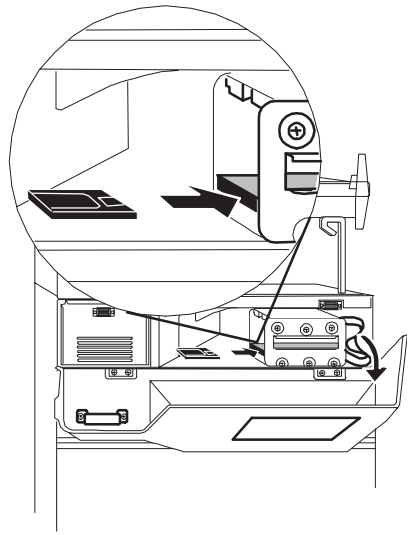
5 **Press the Select key to load the software from the printer's floppy disk drive. The following message appears in the window:**

```
INSTALL TO DISK
TARGET DISK 6
```

6 **Disk 6 is the printer's internal hard disk. Press the Select key. The following message displays:**

```
INSTALL TO DISK
INSERT DISK
```

7 **Pull the control panel assembly away from the front of the printer. The floppy disk drive is located inside the printer as shown below.**



8 **Insert the first disk into the floppy disk drive, and then press the Select key.**

The message window reads `INSTALL TO DISK/INSTALLING`; then `INSTALL TO DISK/DSK 6:` before switching back to `INSTALL TO DISK/INSERT DISK` when it is ready for the next disk. Each disk takes several minutes to load. This process continues until all the disks have been loaded.

9 **Press the Select key after inserting each disk.**

10 **Remove the last disk and close the control panel assembly.**

You have now completed installing the new system software and are ready to boot the system.

11 Press the Menu key. The message window displays the following message:

```
QMS SOFTLOAD x.x
INSTALL TO DISK
```

12 Press the Next key until the message window displays the following message:

```
QMS SOFTLOAD x.x
BOOT SYSTEM
```

13 Press the Select key to enter the Boot System submenu. The following message appears in the message window:

```
BOOT SYSTEM
HARD DISK
```

14 Press the Select key and the following message appears:

```
BOOT SYSTEM
HARD DISK 6
```

15 Hard disk 6 is the internal hard disk. If you have any external hard disks connected, you can cycle through them by pressing the Next key. For this example we are using the internal hard disk. Press the Select key. The system begins loading, and the following message displays:

```
BOOT SYSTEM
LOADING x.x
```

16 At this point, DO NOT TOUCH ANY KEYS until the system has completed loading. The system may go through many cycles of rebooting, which may take several minutes. When the system rebooting is complete, the message window displays:

```
IDLE
```

» Note: If you do touch some keys during this step, you must go back to step 12 and start from there again.

Using the Parallel Port

To install system software upgrades via the parallel port, follow these instructions:

1 **Turn the printer off and then on again. The following message displays in the window:**

```
QMS SOFTLOAD x.x
READY TO BOOT
```

2 **Once this message appears, you have 10 seconds to press the Select key. When you press the Select key, the following message appears in the message window:**

```
QMS SOFTLOAD x.x
BOOT SYSTEM
```

» *Note: If 10 seconds pass before you press the Select key, the IDLE message appears. You must return to step 1.*

3 **Press the Next key until** `INSTALL TO DISK` **appears on the second line of the message window:**

```
QMS SOFTLOAD x.x
INSTALL TO DISK
```

4 **Press the Select key to enter the Install to Disk submenu. Then press the Next key until the following message appears in the message window:**

```
INSTALL TO DISK
PARALLEL
```

5 **Press the Select key to load the software from the host system parallel port. The following message appears in the window:**

```
INSTALL TO DISK
TARGET DISK 6
```

6 **Disk 6 is the printer's internal hard disk. Press the Select key. The following message displays:**

```
INSTALL TO DISK
CONNECTING....
```

7 **Go to your host computer and send the system software. The software is installed when the following message appears:**

```
INSTALL TO DISK
COMPLETE
```

8 **Once you have completed installing the system software, you are ready to boot the system. Return to your printer and press the Menu key. The message window displays the following message:**

```
QMS SOFTLOAD x.x
INSTALL TO DISK
```

9 **Press the Next key until the message window displays the following message:**

```
QMS SOFTLOAD x.x
BOOT SYSTEM
```

10 **Press the Select key to enter the Boot System submenu. The following message appears in the message window:**

```
BOOT SYSTEM
HARD DISK
```

11 **Press the Select key and the following message appears:**

```
BOOT SYSTEM
HARD DISK 6
```

12 **Hard disk 6 is the internal hard disk. If you have any external hard disks connected you can cycle through them by pressing the Next key. For this example we are using the internal**

hard disk. Press the Select key. The system begins loading, and the following message displays:

```
BOOT SYSTEM
LOADING
```

13 At this point, DO NOT TOUCH ANY KEYS until the system has completed loading. The system may go through many cycles of rebooting, which may take several minutes. When the system rebooting is complete, the following message appears:

```
IDLE
```

» *Note: If you do touch some keys during this stop, you must go back to step 9 and start from there again.*

❖

2

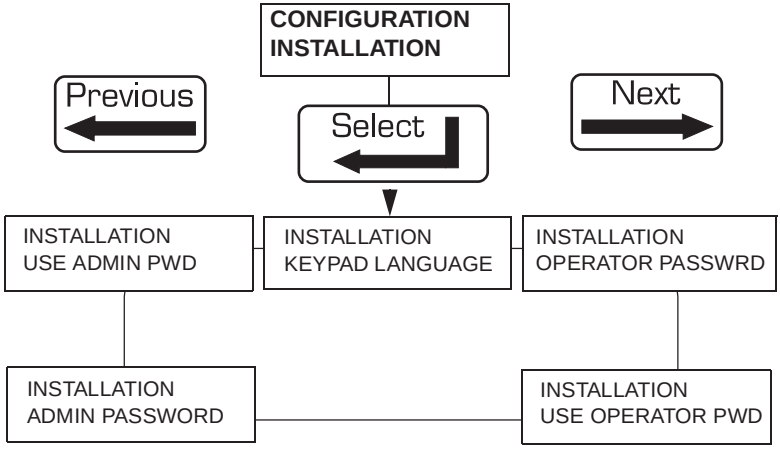
Installation Menu

In This Chapter . . .

- Setting the message window language
- Setting and using passwords

Introduction

When the security disk is inserted in the printer's disk drive, you can access the Installation menu. The options in the Installation menu allow you to select the message window language and establish passwords for the Operator Control and Administration menus



Keypad Language

Use the Keypad Language option to select message displays in English, French, German, or Spanish. The default is English.

Passwords

Setting Passwords

The two password setting options, Operator Passwrd and Admin Password, are options that require alphanumeric values, which may be up to 16 characters in length. If the password you choose is not 16 characters long, you must pad the remainder of the password with spaces. See chapter 1, “Introduction,” for information on entering alphanumeric values.

Using Passwords

The password enabling options, Use Operator Pwd and Use Admin Pwd, can be used to prevent unauthorized access to the printer’s configuration menu.

If Use Operator Pwd is set On, anyone attempting to enter the Operator Control menu must enter the operator password before accessing any of the submenus.

If Use Admin Pwd is set On, anyone attempting to enter the Administration menu must enter the Admin Password before accessing any of the submenus.

Default for both is Off.

❖

3

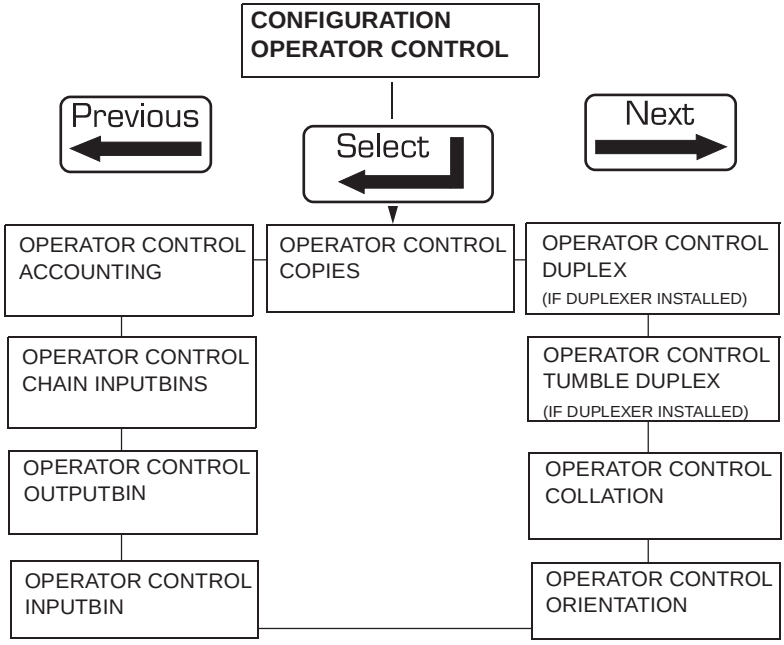
Operator Control Menu

In This Chapter . . .

- Copies
- Duplex and tumble duplex
- Collation
- Orientation
- Input and output bins
- Chaining input bins
- Job accounting

Introduction

The options in the Operator Control menu allow you to set the default values for the various paper handling features of the QMS 3825/ 3225/2025 Print System. The Operator Control menu may be protected by a password (see chapter 2, “Installation Menu,” for more information).



Copies

The Copies option allows you to set the number of copies of each file to be printed. The factory default value is 1. The maximum is 999. Changing this option at the printer control panel effects all print jobs. Most applications can print multiple copies. If you use your application’s multiple-copy feature, keep the printer’s Copies option set to 1.

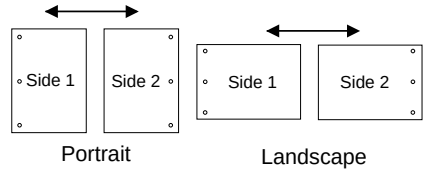
Duplex

The Duplex option allows you to print on both sides of paper, if the Advanced Paper Handling option (duplexer, large-capacity input tray, and system table) has been installed. Duplex choices are On and Off. The default value is Off. Setting Duplex to On at the printer makes all jobs print duplex. If you want to print individual jobs duplex, leave the printer setting at Off and choose duplex through your application.

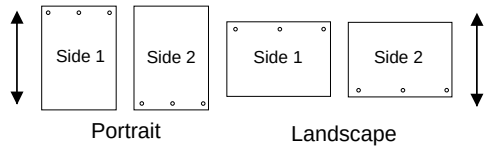
» Note: If you are printing letterhead in duplex mode, the letterhead paper must be loaded face down in the input bins.

Tumble Duplex

The Tumble Duplex option allows you to specify this advanced duplexing option. To use Tumble Duplex, the Advanced Paper Handling option must be installed, and both the Duplex and Tumble Duplex options must be On. Choices for Tumble Duplex are On and Off with a default value of Off. The following illustration shows the difference between duplex and tumble duplex, using three-hole-punched paper as an example.



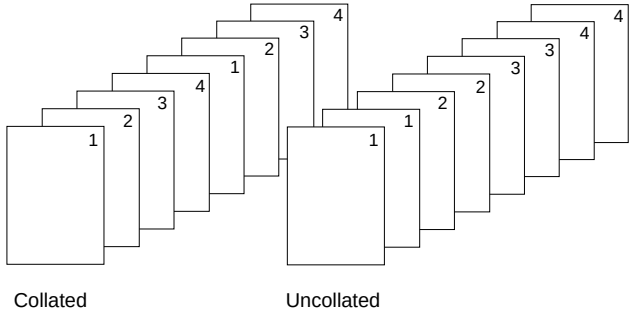
Duplex



Tumble Duplex

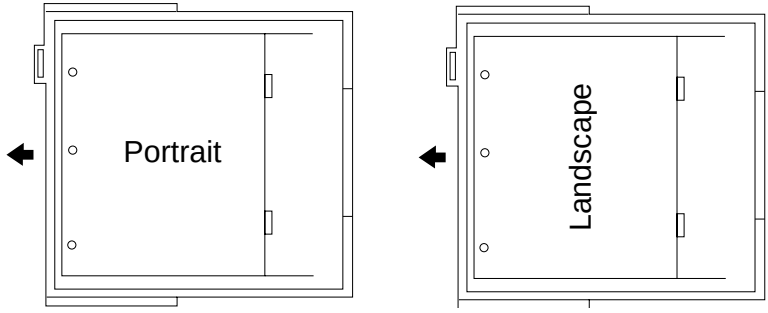
Collation

The Collation option allows you to choose whether to print all copies of a single page before any copies of the next page or whether to print one copy of every page before starting the next entire copy. Choices are On and Off with a default of On. The following illustration shows the difference between collated and uncollated jobs.



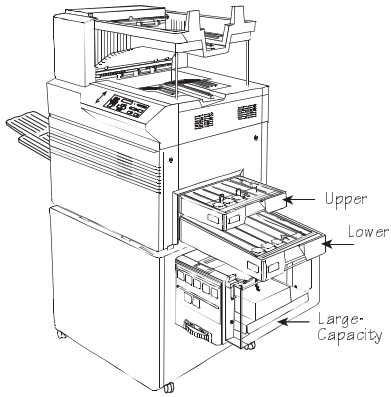
Orientation

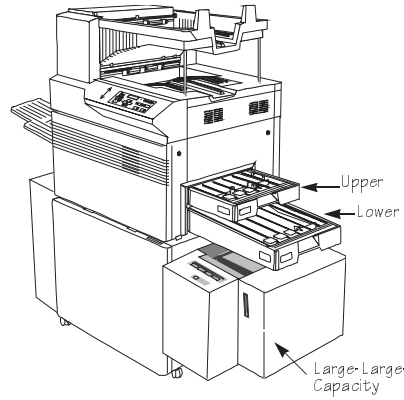
Orientation allows you to select placement of the image on the physical sheet of paper. The choices are Portrait and Landscape. The default is Portrait. If you specify orientation through your application, keep the printer's Orientation option set to Portrait.The following illustration shows page orientation relative to paper in the input bins.



Inputbin

The Inputbin option has a selection of choices for the printer's default paper source. The choices are Upper, Lower, and LCIT (if the Advanced Paper Handling option is installed). Choose LCIT to use the large-capacity input tray on the 3825, 3225, or 2025 Print Systems or the large-large-capacity input tray on the 3825 or 3225. The default is Upper. These illustrations show where the input bins are located:





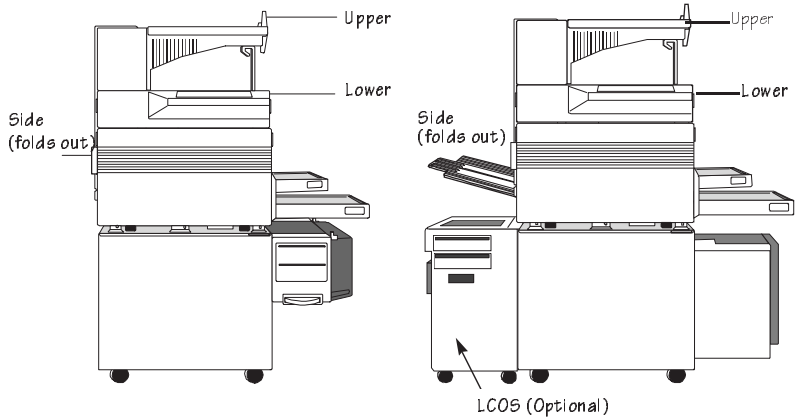
Sheet size may be specified by the QMS DOC **%%IncludeFeature:input** command or, if the printer is on a DECnet network, by the VMS SHEET_SIZE parameter. See *QMS Crown Document Option Commands* or *VMS Interface for QMS Printers* for more information.

Outputbin

The Outputbin option allows you to choose the printer's default output stacker. The default is Upper and the choices for Outputbin are

- Upper
- Lower
- Side (The side, face-up bin, displays as an option only when folded out for use.)
- LCOS (On the 3825 only, if the optional Large-Capacity Output Stacker is installed)
- * (The printer stacks paper in any available face-down bin — upper, lower, or LCOS, if installed).

The illustration below shows the output bins. On the control panel printer icon, the output bins are labeled 1, 2 , and 3 with 1 being the Upper bin, 2 being the Lower bin, and 3 being the Side bin. The optional Large Capacity Output Stacker is not shown on the icon.



Use the Side output bin for small jobs or when using special print media that may have difficulty passing through to the main output bins. Since output is stacked face up in the Side bin, duplex jobs are not stacked in numerical order and have to be hand sorted.

Chain Inputbins

The Chain Inputbins option specifies whether the printer switches to another input bin containing the same size paper when one input bin is empty. The default value for Chain Inputbin is On.

Crown Accounting

Crown accounting, a tool to help you keep track of the use of printer resources, is available on your QMS Print System, with or without a network connection.

Paper use is the most commonly monitored resource. However, Crown accounting also allows you to monitor

- paper use per user
- time consumed serving each user's jobs
- connectivity options
- frequency of jams
- times of peak use
- number, complexity, and average size of jobs per user
- commonly used features, such as duplexing or finishing

» *Note: If you are connected to a network via TCP/IP, you have a choice of using Crown accounting or the standard TCP/IP accounting through your UNIX host software. See the TCP/IP Protocol Option User's Guide for more information on TCP/IP accounting.*

As jobs are printed on the QMS printer, the system collects information about different job parameters in relation to the jobs. When each

job completes, the printer stores an entry for the job in the Job Accounting file(s).

Caution: Do not turn the printer off while the disk is being accessed. Doing so may cause inconsistencies in the information stored.

Accounting Menu

The Accounting menu includes five submenus, allowing you to enable or disable job accounting, allocate disk space when accounting is enabled, reset accounting, store job accounting information in a single job file or in multiple files, and copy the accounting information to a floppy disk.

Job accounting information may be stored in a single file if it can be retrieved via FTP on your host. Otherwise, the selected job accounting file should be spread into several files so that each of the files (or segments) fits on a floppy disk.

Operator Control/Accounting Menu

Accounting Mode
Disk Space
Resetaccounting
Job File Segment
Copy to Floppy

Accounting Mode

The Accounting Mode option enables or disables job accounting. Choices are Enabled or Disabled with a default of Enabled. When you disable accounting, any files containing data remain untouched. However, empty files are removed to save disk space.

Disk Space

The Disk Space option allocates disk space for job accounting files. The range of values is 51200 (50 KB) to 10240 (10 MB) with a default value of 01024 KB (1 MB).

The amount of space required for each job can vary between 200 and 250 bytes, so each 1 MB in the job accounting file will store information on 4,000 to 5,000 jobs.

If the selected value is greater than the current value, the file size is increased to reserve the extra space. If the value is smaller than the current file size, any empty job accounting files are moved. If only one file is used and it is not empty, it cannot be shrunk.

If no accounting information exists in the system when shrinking the usage, the job accounting files are recreated using the new size. The printer does not ask for confirmation for this operation. It takes effect immediately.

Resetaccounting

The Resetaccounting option erases the Accounting files and recreates them using the current file size. If this operation is selected when accounting is disabled, the files are removed but not recreated, thus saving disk space. The range of values is Yes and No. The default value is No.

This operation is also available as the **resetaccount** command for the admin user at a remote console. See the *Remote Console User's Guide* for more information on the **resetaccount** command.

When job files are more than 80% full but less than 100% full, the following message displays on the control panel and remote console:

xxxxxxxx FILE *xxx%* FULL

(*xxx%* is the percentage full, reported as 85%, 90%, or 95%.) This is an appropriate time to copy these files to floppies or to transfer them to your host computer using ftp if it is available to you. Then use the option to reset the accounting files to empty after they are copied to a floppy or to a host.

When the file is 100% full, the

xxx FILE IS FULL

message displays.

» Note: When accounting is enabled and the Job Accounting files are 100% full, no further print jobs are accepted by the printer until Resetaccounting is selected or until Accounting is disabled. If you disable Accounting at this time, no job information is stored. You can retrieve your accounting files while they are full and then do the Resetaccounting operation. However, to avoid delaying jobs being sent to the printer, it is advisable to perform the retrieve/reset operations before the job accounting files fill up.

Job File Segment

The Job File Segment menu allows you to decide whether accounting information is stored in the printer in a single file or in multiple files. Choices are Single and Multiple, with Multiple as the default. Although it is convenient to store accounting data in a single file, the multiple file option is useful if you must transfer your files to your host via floppy disk.

If a single file is used, its size equals the Disk Space value described earlier in this section. The file name will be ACC1.JOB.

If multiple files are selected, their combined size equals the File Size value described earlier in this section. Each file will be 1 MB, except the last file, which includes the remaining dedicated space. That is, if you dedicate 10 MB to accounting and select multiple files, the printer creates 10 files of 1 MB each. If you dedicate 5.5 MB to accounting, the printer creates 5 files of 1 MB each and one of 500 KB. The Job file names will be ACC1.JOB, ACC2.JOB, and so on.

Copy to Floppy

This option copies each of the Accounting files to 1.44 MB, DOS-formatted floppy disks, using the printer's internal floppy drive.

Insert a disk in the printer's floppy drive, select the menu entry for the first file you want to copy, and press Select. It takes several minutes for the file to copy. When the copying is complete, the message window displays

```
COPY TO FLOPPY
*EXIT
```

Press Select and remove the disk. Then follow the same procedure to copy additional files, using a separate disk for each file. There is a menu entry for each possible file, but you need to copy only the ones you use. The last selection copies the auxiliary accounting files to the floppy disk. These files — ACC.STA, ACC.PAP, ACC.DIC — are described later in this chapter.

» Note: Take the printer off line while retrieving accounting files so that no jobs will be sent during the retrieval process. Jobs sent while data is being retrieved may be lost from the accounting files.

Job Accounting Files

The following accounting files are stored in ASCII format on DSK6, the printer's hard disk, in the DSK6:/admin directory:

- Job Accounting File (ACC*x*.JOB)

  This is the main accounting file. When each job completes, the printer stores an entry for the job in this file. The job accounting file may be a single file or multiple files, with *x* as the file number when multiple files are used. Information in this file is kept intact after the printer is turned off and back on again.

- Paper Accounting File (ACC.PAP)

  This file contains descriptions of the paper types supported on the QMS 3825 Print System.

- Status Accounting File (ACC.STA)

  This file stores configuration information about accounting.

- Dictionary File (ACC.DIC)

  This file contains documentation about accounting and a description of the fields used in the other accounting files.

Caution: All the accounting files are stored in ASCII format to make it simpler to use the information in different environments after it is retrieved from the printer's hard disk.

Accounting File Format Description

Accounting files are recorded in ASCII format in a series of tagged fields.

New fields can be added without losing backward compatibility, because each field is tagged. A version field is included in the ACC.STA file to identify the supported fields as the system evolves.

» Note: Field 45 in the Job Accounting File example on page 3-13 illustrates that new fields can be added to the series but used where logical, in this case between fields 6 and 7. Field 45, which provides information about the interface used, was added in response to a customer request.

Conventions

The following conventions are the same for job, paper, and status files:

- Tag Identifiers

  These three-digit numbers are used to identify fields. The three-digit number is used instead of a name to minimize use of disk space. The Dictionary file (ACC.DIC) provides the field names associated with each tag identifier.

- String Information

  String information for record field values is stored inside braces (for example, {this is a string}). This allows spaces within strings and stores only the necessary characters of a string value. String fields for which no value is specified are stored as {}, instead of using blanks or the maximum field size.

- New Records

  New records are separated by a <CR> character to increase readability.

- Separators

  A typical record in any of the accounting files is a sequence of pairs of tag identifiers and field values separated by commas. The tag identifier and field value are separated by a colon.

Example

The following is an example of the format of an accounting file record:

```
 1:  3,  2:{this is a string},  <CR>
```

In this example, the record has fields identified by tags 1 and 2. Since these values don't use 3 digits for the tag identifier, spaces are stored instead, to provide consistency and simplicity while using only a small amount of extra space. In this example, the value for the field tagged 1 is the integer 3 and the value for the field tagged 2 is a string. The <CR> represents the carriage return character.

Accounting Files Description of Fields

This section includes examples of a job accounting file, a paper accounting file, and a status accounting file. Each example is followed by a chart explaining the various fields, using data from the example to help clarify the fields.

Job Accounting File Record Example

This is a sample record extracted from an actual job accounting file:

```
0: 6,  1: 1,  2:{ 8h 5m52},  3:{ 2/ 7/95},  4:3,
5:{lsmith},  6:{}, 45:{ IF 1 Ethernet},
7:{Microsoft Word - WW6083WO.DOC},  8:{},  9:
2794, 10: 15414, 11: 1, 12:   0, 13: 2, 14: 3,
15: 0, 16:0, 17:  1, 18: 0, 19:  1,
20:3, 21: 2
```

Job Accounting File Record Description

Field ID	Description	Example	Explanation
0:	The Job ID field is the document's number. The number sequence restarts whenever the printer is turned off and on again.	0: 6	This is the 6th job since the printer was restarted

1:	This field is the document's internally assigned priority.	1:1	Priority 1, the highest, has been assigned to this job
2:	This field indicates the time a document arrived in the printer by hour, minute, and second.	2: {8h5m52}	Printer received job at 8:05:52
3:	This field indicates the date a document arrived in the printer.	3: {2/ 7/95}	Printer received job on Feb. 7, 1995
4:	This field is the document's completion code: 0 User aborted document 1 Printer aborted document 2 Emulation aborted document 3 Successfully printed document	4: 3	Job printed successfully
5:	The User Name field corresponds to the %%**For** DOC.	5: {lsmith}	L Smith sent job
6:	The Host Name field corresponds to the **%%Host** DOC.	6: {}	No host name assigned
45:	The Connection field indicates the I/O port in which the job arrived.	45:IF 1 Ethernet	This job arrived via Ethernet
7:	The File Name field corresponds to the **%%Title** DOC.	7: {Microsoft Word - WW6083WO. DOC}	QMS DOC was used to assign the title Microsoft Word - WW6083WO. DOC
8:	The Charge Number field corresponds to the **%%Charge Number** DOC. This field identifies the account.	8: {}	No charge number assigned

9:	The Compile Time field is the processor time in milliseconds ($^{1}/_{1000}$ second) spent translating the page description language. Typically, it also includes minimal other system activity.	9: 2794	Processor spent 2.794 seconds compiling the page
10	The Print Time field represents the total elapsed time in milliseconds($^{1}/_{1000}$ second) used by the document since its first page started printing until its last page cleared the printer.	10: 15414	Job took 15.414 seconds from the start of the first page to the end of the last page
11:	The Header Count field indicates how many images comprise the document header page(s) subjob. An image equals one page face.	11: 1	There is one header page
12:	The Error Count field indicates how many images comprise the document error page(s) subjob. An image equals one page face.	12: 0	No error pages
13:	The Body Count field represents the number of images in the actual document, excluding multiple copies. An image equals one page face.	13: 2	Two pages in the document
14:	The Simplex Count field is number of the page faces printed, including body and header pages and taking into consideration multiple copies.	14: 3	Three page faces printed
15:	The Duplex Count field represents the sheet count of duplex pages printed, taking into consideration multiple copies.	15: 0	No duplex pages

16:	The Finishing Options field is a number formed by adding the codes for the different options: 0 None 2 Offset Stacking	16: 0	No finishing options
17:	The Chunk Count field represents the number of collated chunks for this job. If the complete document does not fit in memory, chunk collation is activated. A value of 1 for this field indicates no partial collation was necessary.	17: 1	Entire job printing in one collated unit
18:	The Jam field indicates how many times the printer jammed while printing the document.	18: 0	No jams during this document
19:	The Paper Types Count field indicates how many different types of paper were used in the document and represents the number of separate index entries that follow the main record for the document in the Job Accounting file. A <CR> follows this field before the index entries.	19: 1	One type of paper used in this job
20:	The Index Count field represents the number of sheets of paper of a specific type used by the document. The actual description of the paper is in the Paper Accounting file.	20: 3	Job used three sheets of paper
21:	The Index field represents the record number in the Paper Accounting file that contains the description for the preceding paper count. A <CR> follows each occurrence of this field.	21: 2	A description of the paper type is in Paper Accounting file number 2

Paper Accounting File Record Example

The following example shows a Paper Accounting file:

```
22: 8268, 23: 11693, 24: 75, 25:{ white}, 26:{
plain}, 27:{           },
22: 8500, 23: 11000, 24: 75, 25:{ white}, 26:{
plain}, 27:{           },
22: 7165, 23: 10118, 24:  75, 25:{ white},
26:{               plain}, 27:{           },
22: 14000, 23: 8500, 24:  75, 25:{ white},
26:{               plain}, 27:{           },
22: 16535, 23: 11693, 24: 75, 25:{ white}, 26:{
plain}, 27:{           },
22: 14331, 23: 10118, 24: 75, 25:{ white}, 26:{
plain}, 27:{           },
22: 17000, 23: 11000, 24: 75, 25:{ white}, 26:{
plain}, 27:{           },
22: 7500, 23: 10500, 24:  75, 25:{ white},
26:{               plain}, 27:{           },
22: 8268, 23: 5827, 24: 75, 25:{ white}, 26:{
plain}, 27:{           },
```

Paper Accounting File Record Description

The Paper Accounting file has one record for each of the nine possible paper sizes. Field 21 refers to a specific record in the Paper Accounting file. In the example above, Field 21 indicates that the paper is of the second type. Therefore, the second record from the Paper Accounting file describes the paper used. The second record tells you:

Field ID	Description	Example	Explanation
22:	The Paper Width field contains the paper width in mils ($^1/_{1000}$").	22: 8500	The paper is 8500 mils or 8.5" wide
23:	The Paper Height field contains the paper height in mils ($^1/_{1000}$").	23: 11000	Paper is 11000 mils or 11” high

24:	The Paper Weight represents the weight per surface square units (g/m^2)	24: 75	Paper weighs 75 g/m^2
25:	The Color field indicates the color of the paper.	25: white	Paper is white
26:	The Type field indicates additional properties of the paper.	26: plain	Paper is plain
27:	The Label field represents a name for the paper type.	27: { }	No paper type name

» *Note: Fields 24, 25, 26, and 27 are designed primarily for future enhancements to the accounting capabilities.*

Status Accounting File Record Example

The following is an example of the Status Accounting file:

```
28:  1, 29: 9, 30: 1048576, 31: 1048576, 32:
74993, 33: 74993, 34:  1, 35:  1, 36: 309, 37:2,
38:1, 39:0, 40:0, 41:31, 42:23, 43:31, 44:31
```

Status Accounting File Record Description

Field ID	Description	Example	Explanation
28:	The Version field indicates the accounting file's version number. The initial version is 1.	28: 1	This is the first version of the file
29:	The Number of Paper Types field indicates how many records are in the Paper Accounting file.	29: 9	The paper accounting file has 9 records
30:	The Job Accounting File Size field indicates how many bytes are dedicated to accounting files. Maximum is 10 MB.	30: 1048576	1048576 bytes, or 1 MB, is dedicated to accounting

31:	The Last Job File Size field indicates the size of the last file. In the multiple-file configuration, each file is 1 MB except the last, which holds any remaining space.	31: 1048576	1048576 bytes, or 1 MB, is in the last file
32:	The Job File Usage field indicates in bytes the total current use in all the job files.	32: 74993	All accounting files total 74993 bytes
33:	The Current Job File Usage field indicates in bytes the current level of use in the current Job Accounting file.	33: 74993	The accounting file which is currently receiving data totals 74993 bytes
34:	The Maximum Number of Job Files field indicates the maximum number of job files. For example, even if your system is configured for multiple files, if only 1 MB is dedicated to accounting, the maximum number of files is 1. If 5.5 MB is dedicated to accounting, the maximum number of files is 6.	34: 1	There can be only 1 job accounting file. Although the printer is configured for multiple files (see field 37) there is only one because only 1 MB is dedicated to accounting
35:	The Current Job File field indicates which file has been used most recently. By comparing this with Field 33, you can determine which file is current and how much space is left in it.	35: 1	The most recently used file is File 1

36:	The Number of Jobs field indicates how many documents are accounted for in the Job Accounting file(s). A value of 0 can mean that no jobs have been printed or that accounting is disabled.	36: 309	Current Job Accounting files hold data on 309 jobs
37:	The Multifile field has a value of 1 if a single file is used and a value of 2 if multiple files are used to store job information.	37: 2	Job Accounting is set for multiple files
38:	The Enabled field indicates whether accounting is currently enabled or disabled. 1 Enabled 0 Disabled	38: 1	Accounting is currently enabled
39:	The Job File Full flag indicates whether the Job Accounting file is full. 1 File is full; Resetaccounting should be performed 0 Job accounting file is not full	39: 0	Accounting files are not full
40:	The Paper Accounting File Full flag indicates whether the Paper Accounting file is full. 1 File is full; Resetaccounting should be performed 0 Job accounting file is not full	40: 0	The Paper Accounting file is not full
41:	The User field indicates the maximum character length of the User Name field in the Job Accounting file. User names are assigned with QMS DOC.	41: 31	The User name can be up to 31 characters
42:	The Host field indicates the maximum character length of the Host Name field in the Job Accounting file. Host names are assigned with QMS DOC.	42: 23	The Host name can be up to 23 characters

43:	The File field indicates the maximum character length of the File Name field in the Job Accounting file. File names are assigned with QMS DOC.	43: 31	The File Name can be up to 31 characters
44:	The Charge field indicates the maximum character length of the Charge Number field in the Job Accounting file. Charge numbers are assigned with QMS DOC.	44: 31	The Charge field can be up to 31 characters

Copying the Accounting Files

Accounting files should be transferred to your host computer periodically to keep the printer from being overloaded with data and to allow you easy analysis of data.

» *Note: The printer must be off line when any of the operations discussed in this section are performed. Use the* **ls** *command in the DSK6:/admin directory to see which accounting files you are going to retrieve. The* **ls** *and* **cp** *commands are issued from a remote console.*

Copy the accounting information in one of the following ways, which are described in detail in the next section.

- Use the Copy to Floppy Accounting menu option
- Use the **cp** command from a remote console
- Use the File Transfer Protocol (FTP) if a TCP/IP connection is available to the printer

Using the Copy to Floppy Menu Option

This option copies each of the accounting files to 1.44 MB floppy disks, using the printer's internal floppy drive.

1 Insert a 3.5", DOS-formatted floppy disk into the printer's internal floppy disk drive.

Pull the control panel toward you to open the front of the printer and access the floppy disk drive.

2 **In the Operator Control/Accounting menu, choose Copy to Floppy.**

3 **Select the files you want to copy, choosing from the Job Accounting Files (ACC1.JOB through ACC10.JOB), ACC.STA, ACC.PAP, ACC.DIC.**

Since each file is 1 MB, you need a separate floppy disk for each file. Not all files will exist, so you need to copy only the ones that are necessary.

4 **Remove the floppy disk from the printer and take it to your host computer.**

Using the cp Command

Use the **cp** command to download accounting information from the printer's hard disk to a floppy disk as follows:

1 **Using a remote console, take the printer off line.**

2 **Insert a 3.5" DOS-formatted floppy disk into the printer's floppy disk drive.**

3 **Download the accounting information to the floppy disk using the following commands:**

» Note: The device names (DSK6 or FLP0) must be uppercase. The file names can be either uppercase or lowercase. If multiple Job Accounting files are used, each of the ACCx.JOB files should be retrieved. (x is the number of each subsequent Job Accounting file.)

```
cp DSK6:/admin/acc1.job FLP0:/acc1.job↵
cp DSK6:/admin/acc.pap FLP0:/acc.pap↵
cp DSK6:/admin/acc.sta FLP0:/acc.sta↵
cp DSK6:/admin/acc.dic FLP0:/acc.dic↵
```

4 **Remove the floppy disk from the printer and take it to your host computer.**

Using the File Transfer Protocol (FTP)

» Note: FTP works only when the printer message window displays IDLE. If multiple Job Accounting files are used, each of the ACCx.JOB files should be copied. (x is the number of each subsequent Job Accounting file.)

Use FTP on the host to copy the files from the printer's hard disk to the host as follows:

1 **Type `ftp` *`printer-name`* (where *`printer-name`* is either the Ethernet address of the printer or its corresponding Ethernet name).**

2 **When prompted for a user id, enter `admin` as user name and give the appropriate password, if required.**

3 **At the ftp> prompt, type `bin`↵ to use binary mode for the download procedure.**

4 **Type**

```
get DSK6:/admin/acc1.job acc.job↵
get DSK6:/admin/acc.pap acc.pap↵
get DSK6:/admin/acc.sta acc.sta↵
```

» Note: If multiple Job Accounting files are used, each of the ACCx.JOB files should be copied. (x is the number of each subsequent Job Accounting file.)

5 **Quit ftp.**

Processing Accounting Information on the Host

After the accounting files are stored on your host, you can create your own filters (programs) based on your specific requirements using the file and record descriptions shown earlier in this chapter.

❖

4

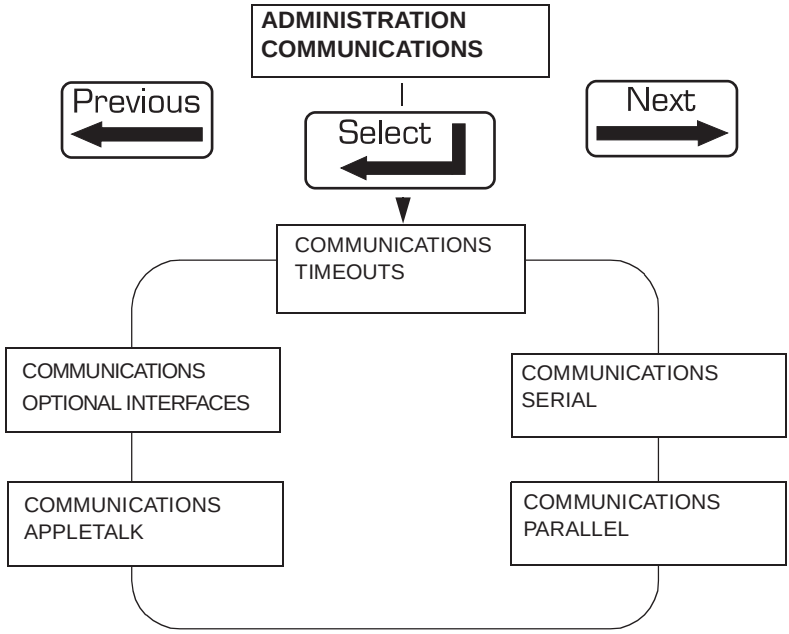
Administration/ Communications Submenu

In This Chapter . . .

- Timeouts
- Serial communications
- Parallel communications
- AppleTalk communications
- Optional interface communications

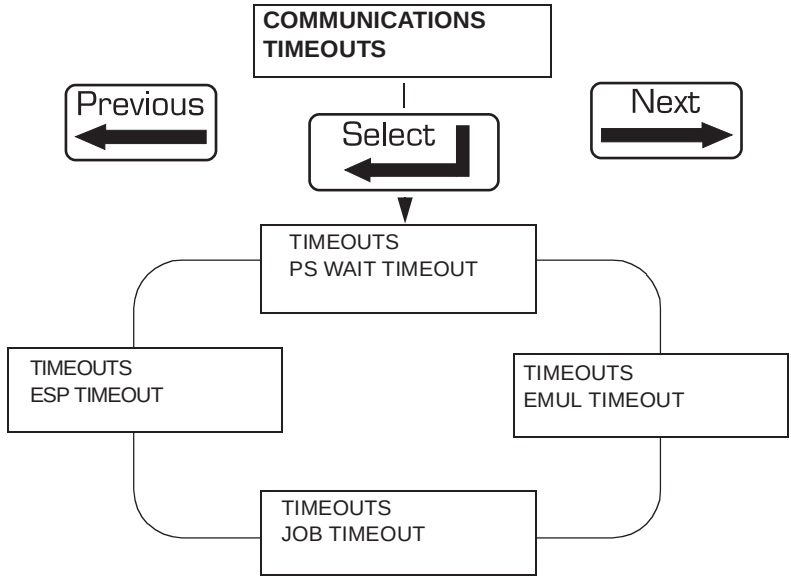
The Communications Submenu

The default settings for printer-host communications are one portion of the Administration menu. The Communications submenu is shown below.



Timeouts

For many print jobs, the time required for transmission from host to printer is negligible. However, some print jobs require more transmission and processing time due to their size. The values in the Timeouts submenu help to ensure reliable transmission while preventing the printer from being tied up by any one job.



PS Wait Timeout

The PostScript Wait Timeout value is the maximum number of seconds the printer waits on data for a PostScript job in process. The range is 0 to 99999 seconds, and the default value is 30 seconds. If this time expires and no new data for the job in process has been received by the PostScript interpreter, the current job is closed. A value of 0 seconds means that the interpreter does not time out while waiting on more data.

Emul Timeout

The Emulation Timeout value is the maximum number of seconds the printer waits on data for a job (other than PostScript) in process. The range is 0 to 99999 seconds, and the default value is 5 seconds. If this time expires and no new data for the job in process has been received by the printer, the current job is closed. A value of 0 seconds means that the printer does not time out while waiting on more data.

Job Timeout

The Job Timeout value is the maximum number of seconds that the printer can process a PostScript job. The range is 0 to 99999 seconds and the default value is 0 seconds (infinity). A Job Timeout value greater than 0 seconds prevents jobs that contain an unrecoverable loop from remaining in the printer and blocking other jobs. However, if the Job Timeout value is too short, jobs that require extensive processing may not finish before time expires. This timeout can be overridden by your application.

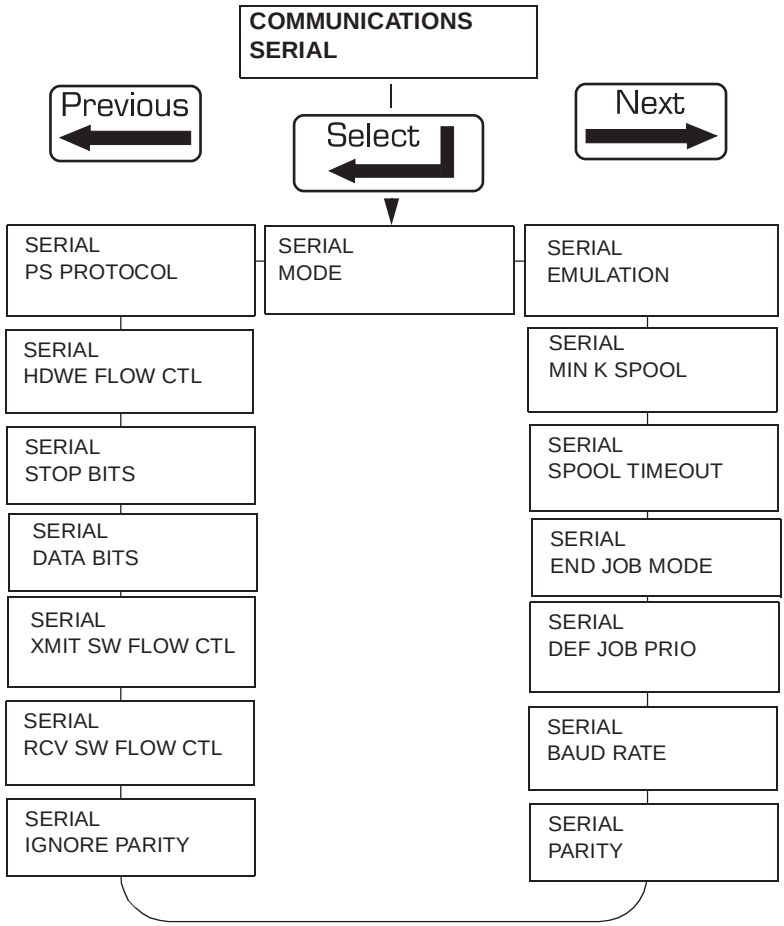
ESP Timeout

The ESP Timeout value is the maximum number of seconds the printer attempts an emulation selection using the Emulation Sensing Processor. The range is 0 to 99999 seconds and the default value is 3 seconds. If ESP cannot select an emulation before this time expires, the printer uses the default emulation to process the job (see chapter 5, “Emulations Submenu”).

Do not set the ESP Timeout to 0 seconds unless you are using the PostScript interactive mode (see the Mode option in the following section, “Serial Communication”). A value of 0 disables the timeout.

Serial Communication

The Serial submenu is shown below.



Mode

The Mode option enables or disables the PostScript interactive mode from the host. The options are Noninteractive, Interactive, and Disabled. Noninteractive establishes one-way communication from the host to the printer. Interactive establishes two-way communication between the host and the printer. Disabled turns off serial communication with the host so that the printer stops accepting print jobs over the serial interface. The default value is Interactive.

Emulation

The Emulation option lets you set the serial interface's default emulation. You can select from the standard emulations supported by the printer (PCL 5, Lineprinter, HP-GL, LN03 Plus, imPRESS, ESP, CCITT, and PostScript), an optional emulation, or Hexdump. The factory default value is ESP.

Selecting Hexdump generates a listing, in hexadecimal format, of all data received over the interface. Hexdump is useful for diagnosing communication problems.

Min K Spool

This five-digit value sets the minimum number of kilobytes of system memory dedicated to the serial interface. The range is 00000 to 99999 and the default value is 00015. See "Dedicating Memory to an Interface" in chapter 7 for information about the Min K Spool setting.

Spool Timeout

The Spool Timeout option is a numeric value for the number of seconds that the printer waits for additional data from the host while it is spooling a job. The range is 00000 to 99999 seconds and the default value is 00030 seconds. If you change this setting, you must ensure that the new setting does not conflict with the PS Wait Timeout and Emul Timeout values.

If the Spool Timeout value expires before the printer has received all data for a job it is spooling, the printer terminates the spooled print job.

End Job Mode

This option selects the End of Job terminator to be used for the serial interface without consideration for interacting timeouts. There are three choices available: None, QMS EOD (%%EndOfDocument), and HP EOD (<ESC>%-12345X). Only one form of EOD can be used at a time. The default is QMS EOD. Refer to *QMS Crown Network Notes* for more information on End Job Mode.

Def Job Prio

The Def Job Prio (Default Job Priority) option determines which jobs are printed first, according to the interface from which they are received, when jobs are received simultaneously. The range is from 001 to 100 with 001 being the first job. The default is 001.

Baud Rate

Baud Rate is the data transmission rate used by the host. The baud rate options are 300, 600, 1200, 2400, 4800, 9600, 19200, and 38400. The default value is 9600. Set this option to match the baud rate used by the host.

» Note: Baud rates 19200 and 38400 require RTS/CTS protocol (see "Hdwe Flow Ctl," later in this section).

Parity

The Parity option allows you to choose the type of parity checking performed by the host. Parity acts as a check bit to identify data transmission errors. The options are None, Mark, Space, Odd, or Even. The default value is None. Set this option to match the parity used by the host.

Ignore Parity

The Ignore Parity option specifies how the printer should handle parity errors. Choices are On and Off. When Ignore Parity is Off, the printer reports parity errors by replacing the character(s) affected by the error with a question mark. When Ignore Parity is On, the printer ignores parity errors and prints its best interpretation of the character(s) affected by the error. The default is Off.

Rcv Sw Flow Ctl

If your host uses software flow control, the Rcv Sw Flow Ctl (Receive Software Flow Control) option allows you to choose the type of flow control used by the printer for its communication with the host. The choices are None, XON/XOFF, and ETX/ACK. The default value is XON/XOFF. Set this option to match the type of flow control expected by the host.

Xmit Sw Flow Ctl

If your host uses software flow control, the Xmit Sw Flow Ctl (Transmit Software Flow Control) option allows you to choose the type of flow control used by the host for its communication with the printer. The choices are None, XON/XOFF, and ETX/ACK. The default value is None. Set this option to match the type of flow control used by the host.

Data Bits

The Data Bits option allows you to set the number of data bits per character in the data stream. The choices are 7 or 8 bits. The default value is 8 bits. Set this option to match the number of data bits transmitted by the host.

Stop Bits

The Stop Bits option allows you to set the number of stop bits per character in the data stream. The choices are 1 or 2 bits. The default

value is 1 bit. Set this option to match the number of stop bits transmitted by the host.

Hdwe Flow Ctl

The Hdwe Flow Ctl (Hardware Flow Control) option allows you to pick the type of hardware flow control used by your host. The choices are DSR POL (default value: Lo), DSR (default value: Off), DTR POL (default value: Lo), DTR (default value: On), RTS (default value: Off), and CTS (default value: Off).

If your host uses hardware flow control, set this option to match the type used by the host.

PS Protocol

This option sets the binary communications protocol (BCP) for communicating over a serial, parallel, or optional network interface to a PostScript printer. Binary communications protocol allows any 8-bit binary value (0-255) to be treated as data, while allowing a few of the values to function as special control characters. When communicating 8-bit binary data in Binary or Binary Fixed mode, the printer uses the quoting mechanism of the BCP to distinguish between the special control characters and print job binary data.

To differentiate data from the special control characters, any data that is the same as one of the following special control characters must be quoted:

ASCII Keyboard	ASCII Name	ASCII Hex Value	Control Function
^A	SOH	0x01	Quote data character
^C	ETX	0x03	Abort job and flush to end of file
^D	EOT	0x04	End-of-file marker
^E	ENQ	0x05	(Reserved for future use)
^Q	DC1	0x11	XON in XON/XOFF flow control
^S	DC3	0x13	XOFF in XON/XOFF flow control

^T	DC4	0x14	Job status request
^\	FS	0x1C	(Reserved for future use)

A data byte is quoted by replacing it with a two-character sequence. The first character is a ^A (ASCII hex 0x01), and the second character is the character itself XORed with the ASCII value 0x40. For example, to send the value 0x14 (^T) as data, send the two character sequence 0x01 0x54 (^A T) instead. (ASCII T in the example is the result of XORing ^T with 0x40.)

This method of quoting guarantees that whenever any of the eight control characters is received by the printer, the control function is intended regardless of whether the preceding character is a ^A. Any data byte not equal to one of the eight special control characters is transmitted by sending the data byte.

The settings for this option are as follows:

Normal enables standard, ASCII hex protocol. Data is sent and received in ASCII format. Print jobs can alter this value through PostScript operators. The default is Normal.

Normal Fixed enables standard, ASCII hex protocol. Print jobs cannot alter this value through PostScript operators.

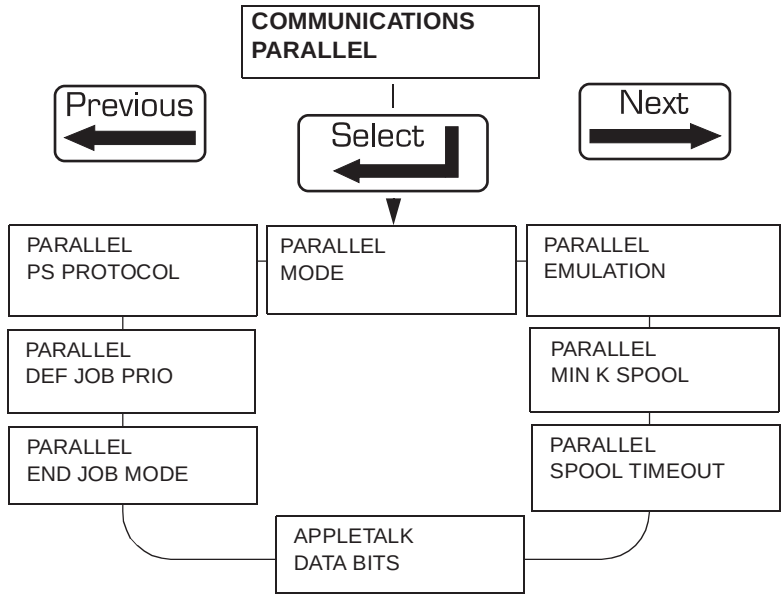
Binary enables binary communications protocol. Print jobs can alter this value through PostScript operators.

Binary Fixed enables binary communications protocol. Print jobs cannot alter this value through PostScript operators.

» *Note: When PS Protocol is set to the Normal Fixed or Binary Fixed mode, and a print job sends PostScript operators to change the input device mode, the operators are expected but not acted on.*

Parallel Communication

The Parallel submenu is shown below.



Mode

The Mode option controls whether the parallel interface is active. The default value is Enabled. If you are not using the parallel interface, you can select Disabled to prevent any jobs from being received over the interface.

Emulation

The Emulation option determines the interface's default emulation. The default value is ESP. You can select a default emulation for the interface from the standard emulations supported by the printer (PCL

5, Lineprinter, HP-GL, LN03 Plus, imPRESS, ESP, CCITT, and PostScript), an optional emulation, or Hexdump.

Selecting Hexdump generates a listing, in hexadecimal format, of all data received over the interface. Hexdump is useful for diagnosing communication problems.

Min K Spool

This five-digit value sets the minimum number of kilobytes of system memory dedicated to the Parallel interface. The range is 00000 to 99999 and the default is 00015. See “Dedicating Memory to an Interface,” in chapter 7, “Memory Submenu,” for information about the Min K Spool setting.

Spool Timeout

The Spool Timeout option is a numeric value for the number of seconds that the printer waits for additional data from the host while it is spooling a job. The range is 00000 to 99999 seconds and the default value is 00030 seconds. If you change this setting, you must ensure that the new setting does not conflict with the PS Wait Timeout and Emul Timeout values.

If the Spool Timeout value expires before the printer has received all data for a job it is spooling, the printer closes the spooled print job.

Data Bits

The Data Bits option sets the number of data bits per character in the data stream from the host. The choices are 7 and 8 bits. The default value is 8 bits. Set this value to match your host.

End Job Mode

This option selects the End of Job terminator to be used for the parallel interface. There are three choices: None, QMS EOD (%%EndOfDocument), and HP EOD (<ESC>%-12345X). Only one form of EOD

can be used at a time. The default is QMS EOD. Refer to *QMS Crown Network Notes* for more information on End Job Mode.

Def Job Prio

The Def Job Prio (Default Job Priority) option determines which jobs are printed first, according to the interface from which they are received, when jobs are received simultaneously. The range is from 001 to 100. The default is 001, which is the highest priority.

PS Protocol

This option sets the binary communications protocol (BCP) for communicating over a serial, parallel, or optional network interface to a PostScript printer. Binary communications protocol allows any 8-bit binary value (0-255) to be treated as data, while allowing a few of the values to function as special control characters. When communicating 8-bit binary data in Binary or Binary Fixed mode, the printer uses the quoting mechanism of the BCP to distinguish between the special control characters and print job binary data.

To differentiate data from the special control characters, any data that is the same as one of the following special control characters must be quoted:

ASCII Keyboard	ASCII Name	ASCII Hex Value	Control Function
^A	SOH	0x01	Quote data character
^C	ETX	0x03	Abort job and flush to end of file
^D	EOT	0x04	End-of-file marker
^E	ENQ	0x05	(Reserved for future use)
^Q	DC1	0x11	XON in XON/XOFF flow control
^S	DC3	0x13	XOFF in XON/XOFF flow control
^T	DC4	0x14	Job status request
^\	FS	0x1C	(Reserved for future use)

A data byte is quoted by replacing it with a two-character sequence. The first character is a ^A (ASCII hex 0x01), and the second character is the character itself XORed with the ASCII value 0x40. For example, to send the value 0x14 (^T) as data, send the two character sequence 0x01 0x54 (^A T) instead. (ASCII T in the example is the result of XORing ^T with 0x40)

This method of quoting guarantees that whenever any of the eight control characters is received by the printer, the control function is intended regardless of whether the preceding character is a ^A. Any data byte not equal to one of the eight special control characters is transmitted by sending the data byte.

The settings for this option are as follows:

Normal enables standard, ASCII hex protocol. Data is sent and received in ASCII format. Print jobs can alter this value through PostScript operators. The default is Normal.

Normal Fixed enables standard, ASCII hex protocol. Print jobs cannot alter this value through PostScript operators.

Binary enables binary communications protocol. Print jobs can alter this value through PostScript operators.

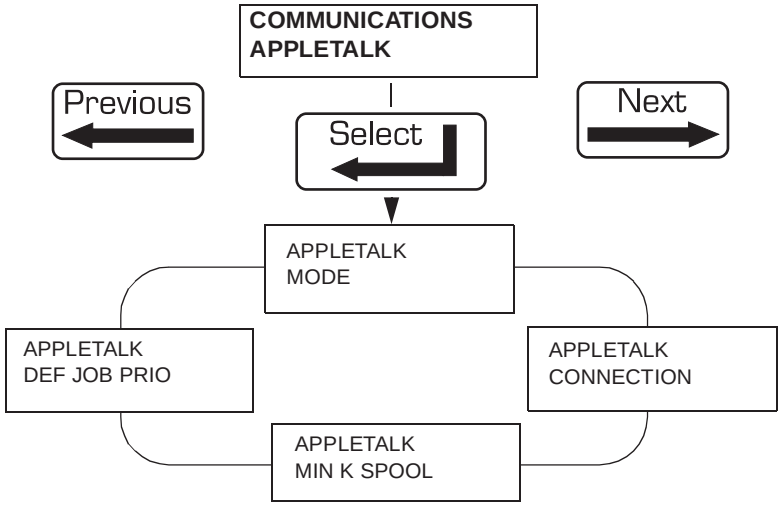
Binary Fixed enables binary communications protocol. Print jobs cannot alter this value through PostScript operators.

» *Note: When PS Protocol is set to the Normal Fixed or Binary Fixed mode, and a print job sends PostScript operators to change the input device mode, the operators are accepted but not acted on.*

AppleTalk Communication

The AppleTalk submenu allows you to configure the printer-host communications when using the AppleTalk interface. The AppleTalk submenu is shown below.

» Note: AppleTalk does not have an option for Emulation. Only PostScript emulation jobs can be received over the AppleTalk interface.



Mode

There are two choices for Mode: Enabled and Disabled. If the Mode set-up option is Disabled, the printer accepts no jobs through this protocol. Enabled mode allows communication between the host computer and the printer. Any change to this option takes effect only after turning the printer power off and on again. The default is Enabled.

Connection

The Connection set-up option defines the type of connection you are using. The options are Conventional and Spool, with Conventional being the default. Spool allows you to use the AppleTalk protocol that manages interaction between workstations and print servers. This option allows print spooling. Conventional does not provide print spooling. Select Conventional to print directly to the printer. Any change to this option takes effect only after turning the printer power off and on again.

Min K Spool

This five-digit value sets the minimum number of kilobytes of system memory dedicated to the AppleTalk interface. The range is 0 to 99999 seconds and the default is 00015. See “Dedicating Memory to an Interface,” in chapter 7, “Memory Submenu,” for information about the Min K Spool setting.

Def Job Prio

The Def Job Prio (Default Job Priority) option determines which jobs are printed first, according to the interface from which they are received, when jobs are received simultaneously. The range is from 001 to 100. The default is 001, which is the highest priority.

Optional Interface

You can order an optional interface for your QMS printer so you can connect to other networks. If an optional interface is installed, it appears in the Communications submenu. Refer to the interface documentation and to your network documentation for information on connecting your printer to the network and configuring it for network printing.

❖

5

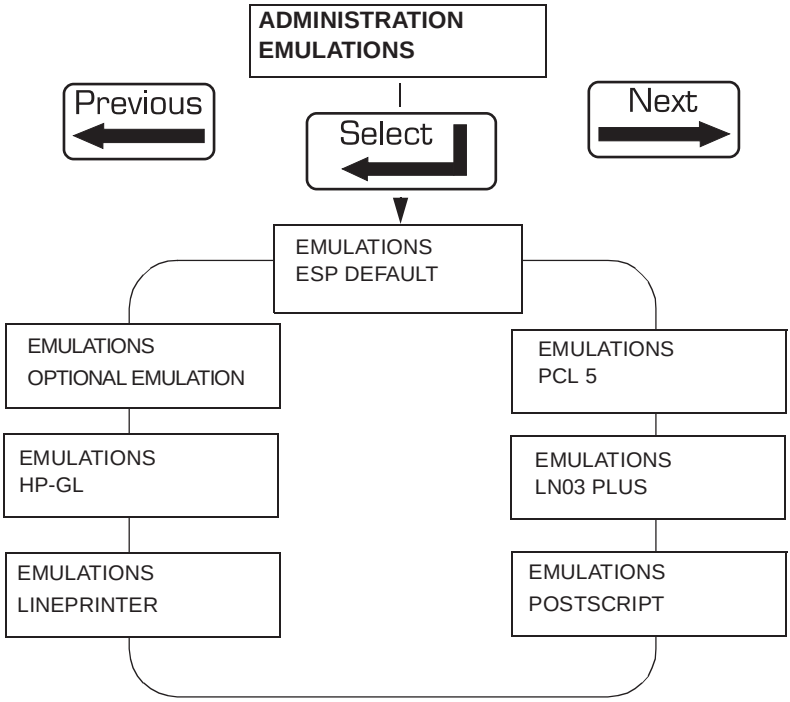
Emulations Submenu

In This Chapter . . .

- HP PCL5 emulation settings
- Lineprinter emulation settings
- HP-GL emulation settings
- LN03 Plus emulation settings
- ESP Default settings
- PostScript emulation levels
- CCITT and imPRESS information
- Optional emulations

The Emulations Submenu

The options in the Emulations submenu of the Administration menu select the default values for the various document processing features of the QMS 3825/3225/2025 Print System. The Administration menu may be protected by a password. See chapter 2, “Installation Menu,” for more information. The Emulations submenu is shown below.



» Note: This chapter also includes information about two other standard emulations, CCITT and imPRESS, which are accessible only through QMS Document Option Commands.

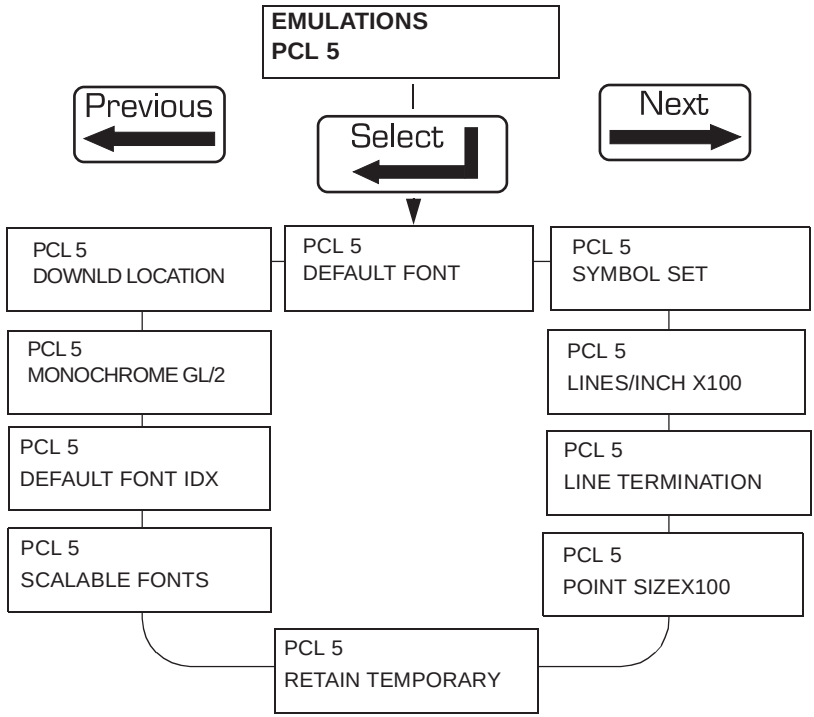
ESP Default Option

The ESP Default lets you set which emulation the printer uses if the Emulation Sensing Processor cannot identify the emulation of a print job. ESP has a specific length of time within which it attempts to identify the emulation (see “Timeouts” in chapter 4 of this manual). If this time expires, the printer automatically uses the emulation you select as ESP Default to process the job.

The choices for ESP Default are those emulations supported by the printer. The default value is PCL 5. If your print jobs are predominantly one emulation, select that emulation as the ESP Default.

PCL 5

The PCL 5 submenu contains settings for the default conditions of the HP LaserJet IIISi emulation. The illustration below shows the PCL 5 settings.



Default Font

The Default Font option has a selection of choices for the PCL 5 default font. Fonts marked with an asterisk (*) are scalable. Select by index instructs the printer to select the font by the Default Font Index. The default value is Courier 12. The choices are

Courier12
Courier12 Bold
Courier12 Italic
Courier10
Courier10 Bold
Courier10 Italic
Lineprinter
Times*
Times*Italic
Times*Bold
Times*BldItalic
Univ*
Univ*Italic
Univ*Bold
Univ*bolditalic
Univcond*
Univcond*Italic
Univcond*Bold
Univcond*Bld Itlc
Select by index

Symbol Set

Symbol Set allows you to select the character set used by PCL 5 jobs. The default for Symbol Set is Roman-8. The choices are

Desktop
ECMA-94
HP German
HP Spanish
ISO-2
ISO-4
ISO-6
ISO-10
ISO-11
ISO-14
ISO-15
ISO-16
ISO-17
ISO-21
ISO-25
ISO-57
ISO-60
ISO-61
ISO-69
ISO-84
ISO-85
Legal
Math-8
Microsoft-Pub
PC8-US
PC8-DN
PC-850
Pi-Font
PS-Math
PS-Text
PS-Zapf-Dingbats
Ventura-Dingbats
Ventura-Intl
Ventura-Math
Ventura-US
Windows
Zapf-Dingbats100
Zapf-Dingbats200
Zapf-Dingbats300
Roman-8

Lines/Inch X100

Lines/Inch X100 sets the default line spacing for PCL 5. The number of lines per inch is set in hundredths. Multiply the desired number of lines per inch by 100. For example, to set 6.6 lines per inch, enter 660. Choices range from 100 to 4800 (1 to 48 lines) with a default of 600, or 6 lines per inch.

Line Termination

Line Termination sets the printer response to a carriage return or line feed character while in PCL 5 emulation. The choices are

CR = CR, LF = LF
CR = CR + LF, LF = LF
CR = CR, LF = CR + LF
CR or LF = CR + LF

CR stands for carriage return. LF stands for line feed. The default is CR=CR, LF=LF.

Point Size X100

This option sets the point size in hundredths for scalable default fonts (those listed with an asterisk [*] in the Default Font options). For example, a 24-point default size is selected by entering 2400. Point sizes are selectable in increments of 25. The minimum value is 25 (0.25 points), the maximum is 99975 (999.75 points), and the default is 1200 (12 points).

Retain Temporary

Retain Temporary allows you to choose whether to retain temporary PCL 5 macros and fonts at the end of each print job. The options are Off (temporary fonts and macros are deleted at the end of each job), On (save the temporary macros and fonts), and On Compatibility (retain the entire state of PCL as well as the temporary macros, fonts, and patterns from previous PCL jobs). The default is Off.

Scalable Fonts

Scalable fonts allows you to specify whether to scale PCL 5 fonts. The options are Enable and Disable with the default being Enable. Disabling Scalable fonts essentially recreates PCL 4 and allows you to prevent PCL4 documents from inadvertently selecting PCL 5 scalable fonts.

Default Font Idx

This option sets the default font index when the default font is set to select by index. The setting is a numeric value with a minimum of 0, a maximum of 32767, and a default equal to your Select by Index value.

Monochrome GL/2

This option allows your printer to emulate a monochrome or color plotter. Options are On (sets the printer to monochrome, or 2-pen) and Off (sets the printer to color, or 8-pen). When Monochrome GL/2 is set to On, grayscale patterns are substituted for colors. Default is On.

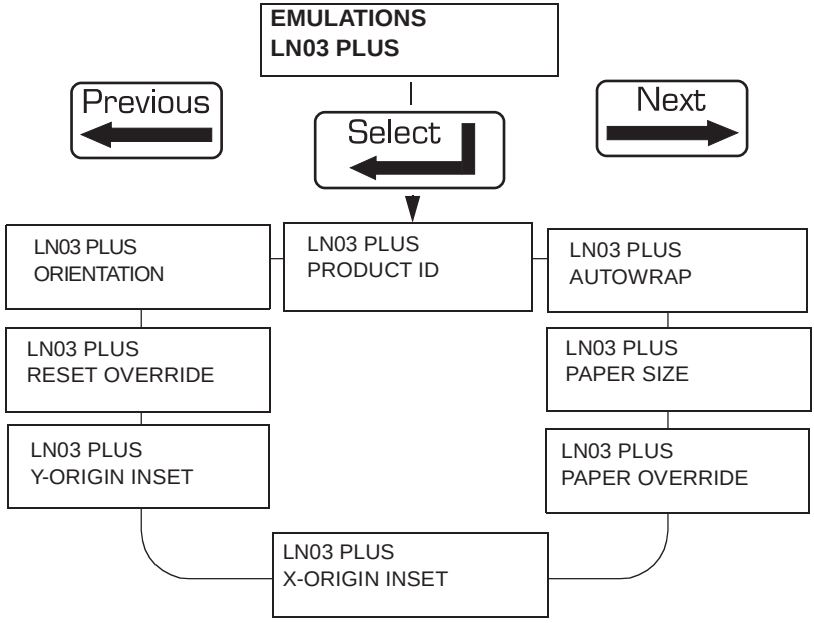
Downld Location

This option allows you to set the default storage for PCL objects (fonts, macros, and patterns). Choices are Memory and Disk. If set to Memory, all downloaded PCL objects will by default reside in temporary storage in RAM. If set to Disk, they will be stored in the default disk resource, if present. The default setting is Disk. Systems with a hard disk and large amounts of memory may enhance system performance by using Memory for PCL object storage. Document Option Commands specifying locations for downloaded objects will override this setting on a per job basis.

» *Note: It is possible to set Downld Location to Disk even if no disk is installed. If Disk is chosen when no disk is present, memory will be used for storage.*

LN03 Plus

The LN03 Plus emulation includes the following menu options:



Product ID

The Product ID setting is the emulation printer model. If your host sends a Device Attributes request to the printer, the printer responds with the product ID. You can select LN03, LQP02, or LA100. The factory default setting is LN03.

Autowrap

The Autowrap setting determines whether text that exceeds the right margin “wraps” to the next line on the page. The range is On and Off. The default setting is On (wrap text to next line).

Paper Size

The Default Paper option specifies the paper size that is to be used at power up or when no paper size is specified. Available paper sizes are Letter, A4, and Legal. The default value is Letter.

Paper Override

The Paper Override option sets the paper selection. The range of possible values is On and Off. The default value is Off. If set to Off, the emulation uses the transformation point for the size of paper selected and uses the current paper size (does not change paper trays). If Paper Override is set to On, the emulation uses the transformation point for the size of paper selected and uses the specified paper size.

X-Origin Inset

The X-Origin Inset option moves the lower-left corner of the image (0,0) to the right from 0 to 300 dots (1 inch at a resolution of 300 dpi). Use this option to eliminate clipping of the right edge of the image on some systems. The default offset is 75 dots.

Y-Origin Inset

The Y-Origin Inset option moves the lower-left corner of the image (0,0) downward from 0 to 300 dots (1 inch at a resolution of 300 dpi). Use this option to eliminate clipping of the top edge of the image on some systems. The default offset is 75 dots.

Reset Override

The Reset Override option determines whether the printer automatically resets to the initial power-up configuration before every print job or whether it retains the configuration from the previous print job. The range of possible values is Off and On. The default setting is Off.

Orientation

The Orientation option specifies the orientation to be used by the LN03 Plus emulation. The range of possible values is Portrait and Landscape. The default value is Portrait. Portrait orientation has the y axis parallel to the long edge of the page. Landscape orientation has the y axis parallel to the short edge of the page.

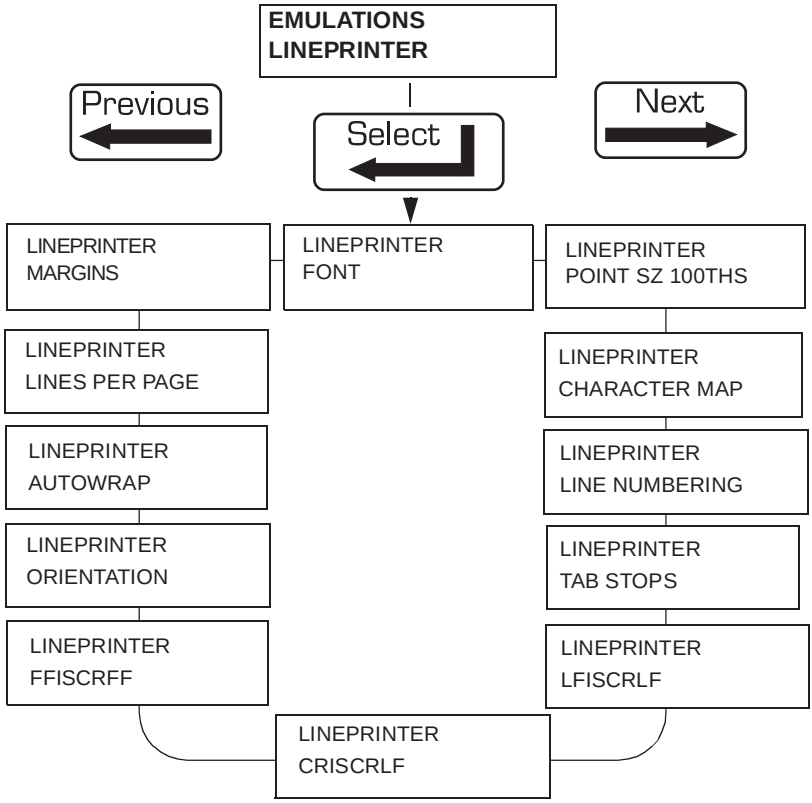
» Note: This option applies only to the LN03 Plus emulation. The LN03 Plus emulation respects orientation only when it is set through the LN03 Plus emulation menu or through the LN03 emulation's orientation command.

PostScript

By selecting PostScript in the Emulations submenu, you are able to choose which emulation level of PostScript the printer uses to print your file. The choices are Level 2 for QMS Level 2 emulation, Level 1 B/W for PostScript Level 1 emulation that uses no color operators, and Level 1 Color for PostScript Level 1 emulation that uses color operators. Level 2 works for Level 2 files and most Level 1 files. The default is Level 2.

Lineprinter

The Lineprinter submenu contains settings for the default conditions for this emulation. The Lineprinter emulation prints simple byte-oriented lineprinter files. A byte-oriented lineprinter handles jobs consisting of a series of bytes, where lines are delimited by carriage returns and line feed characters. The illustration below shows the options within the Lineprinter emulation.



Font

This option specifies the font to be used to print the current job. Any PostScript fonts available on the printer can be used. To see a list of PostScript fonts available, print an advanced status page. The default is Courier.

Point Sz 100ths

This option is a five-digit value which specifies, in increments of .01 point, the point size of the font to be used to print the current print job. The range is from 400 (4 points) to 25600 (256 points). The default is 00880 (8.8 points).

Character Map

This selection specifies the type of character map to be used. The choices are ASCII and EBCDIC. The default is ASCII.

Line Numbering

Line numbering specifies that a five-digit number is to be prefixed to the beginning of each line. The choices are On and Off with Off being the default.

Tab Stops

This option specifies the number of spaces between tab stops. The minimum number of tab stops is 0 and the maximum is 256. The default is 8.

LF IS CRLF

Use this option to stipulate whether each line feed in the print job is translated to a carriage return/line feed combination. The choices are On and Off with On being the default.

CR IS CRLF

CRISCRLF determines whether each carriage return in the print job is translated to a carriage return/line feed combination. The choices are On and Off with Off being the default.

FF IS CRFF

This option stipulates whether each form feed in the print job is translated to a carriage return/form feed combination. The options are On and Off with On being the default.

Orientation

This option specifies whether text is printed Portrait or Landscape. The default is Portrait.

Autowrap

This option indicates whether long lines are to be wrapped onto the next line instead of being truncated. The options are On and Off with Off being the default.

Lines Per Page

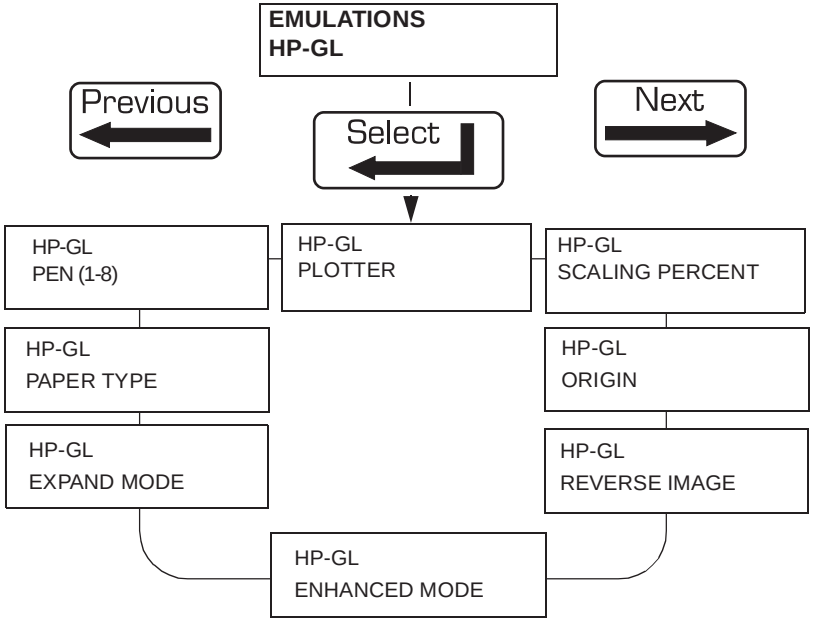
This option specifies the number of lines printed on a page before an automatic page eject. Interline spacing is set to the selected point size. Logical pages consisting of more lines than specified are split into multiple pages. The minimum Lines Per Page setting is 1, and the maximum is 128. The default is 87.

Margins

This option defines the left, right, top, and bottom margins from 0 to 17 inches in .01" increments. The minimum setting is 0 and the maximum is 1700 (17"). The default is 0.

HP-GL

The HP-GL options contain settings for the default conditions of the HP-GL (plotter) emulation. The illustration below shows the HP-GL options.



Plotter

The Plotter option selects which type of HP-GL compatible plotter the QMS printer emulates for HP-GL jobs. The choices are 7470A, 7475A, 7550A, and ColorPro. (Selecting ColorPro does not result in color printing. Colors are represented by varying gray shades.) The default value is 7550A.

Scaling Percent

The Scaling Percent option is a numeric value for the percentage of enlargement or reduction of the plot. The minimum value is 1 and the maximum is 150. The default value is 100 (same size).

» Note: To scale plots, select the paper size originally used for the plot in the Paper Type menu; then enter the reduction or enlargement needed to fit the plot on the new page in the Scaling Percent submenu. If necessary, enter new x,y coordinates in the Origin submenu to reposition the plot on the page.

Origin

The Origin option is a numeric value for the distance to move the plot origin along the x and y axes in increments of .001". The minimum value is 0, and the maximum values are 8500 (8.5") for the x axis and 11000 (11") for the y axis. The default values are 0000 (x axis) and 00000 (y axis). Values of 0 for both x axis and y axis align the plot origin with the lower-left corner of the paper. The default values move the plot origin just inside the boundaries of the printable region of the page. Setting values less than the defaults or too high may result in lost portions of the plot when printed.

Reverse Image

The Reverse Image option has two choices for printing white plots on a black background. The default value is Off (print black on a white background). If you select On, black lines in the plot print in white, and white lines print in black.

Enhanced Mode

The Enhanced Mode option has two choices that specify the resolution of a downloaded character set. The choices are Off (standard resolution for fixed- and variable-spaced fonts, 4x8 character grid) or On (enhanced resolution for variable spaced fonts, 32x32 character grid). The default value is Off.

Expand Mode

The Expand Mode option expands the default scaling points (P1 and P2), the hard-clip plotting range, and the maximum plotting area to the imageable area of the QMS printer. The default value is Off (do not expand).

Paper Type

The Paper Type option allows you to scale an image to the defined paper size when printing a plot image. The choices are A (8.5" x 11"), A4 (210 mm x 297 mm), B (11" x 17"), A3 (297 mm x 420 mm), or Scale to Paper. The default value is Scale to Paper.

Pens 1-8

The Pen options set the width and color of the 8 “pens” the printer uses when printing HP-GL emulation jobs. The pen width may be set from 0 (0 mm wide) to 60 (60 mm wide). The pen color choices are Black (100% black), Violet (59% black), Brown (50% black), Gray-25%, Gray-50%, Gray-75%, Red (70% black), Orange (25.8% black), Yellow (11% black), Green (41% black), Blue (89% black), Cyan (30% black), and Magenta (59% black). The default settings are

Pen	Width	Color
1	7 mm	Black
2	3 mm	Black
3	3 mm	Red
4	3 mm	Green
5	3 mm	Blue
6	3 mm	Violet
7	3 mm	Orange
8	3 mm	Brown

CCITT Groups 3 and 4

By adding the QMS DOC **%%IncludeFeature:emulation (ccitt)** to the beginning of your file, you can access the printer-resident CCITT Group 3 and 4 emulation.

CCITT Commands

The CCITT command language consists of ASCII text strings that set options for the CCITT emulation. The options must be set on a per-image basis because they are returned to their default values after each image is decompressed. If the correct decompression options are not set before the decompression begins, the emulation absorbs the data until it finds a valid end-of-job marker.

Unlike QMS DOC, CCITT commands do not need to be placed at the beginning of a document but can be placed where needed.

The remainder of this section provides the function, syntax, and default settings of all available CCITT commands.

Command Syntax

The following conventions are used in the discussion of all CCITT commands that follow.

mixed-case bold	CCITT command
mixed-case bold italic	Command variable; replace the variable with information specific to your document
%%	Introduce the command; you must type these characters
( )	Enclose command variables; you must type the parentheses

BitReverse

Function	Causes the CCITT emulation to reverse the bits within each byte of the image data automatically.	
Syntax	**%%BitReverse *(true/false)***	
	true	Indicates that the bits are to be reversed.
	false	Indicates that the bits are not to be reversed.
Default	false	

BlockEnd

Function	Indicates whether a CCITT End of Block is included in the image data.	
Syntax	**%%BlockEnd *(true/false)***	
	true	Indicates that a BlockEnd is required in the image data. Otherwise, an error results.
	false	Indicates that a BlockEnd is not required in the image data but, if present, it is accepted with no error.
Default	false	

Compression

Function	Sets the data compression type of the data following the **%%ImageData** command.		
Syntax	**%%Compression *(type)***		
	type	0 1 2	Group 4 Group 3, 1-dimensional Group 3, 2-dimensional
Default	0 (Group 4)		

DPI

Function	Sets the print resolution (dots per inch) to match the scanned resolution of the original image.	
Syntax	**%%DPI *(horizontal vertical)***	
	horizontal	Identifies the horizontal resolution.
	vertical	Identifies the vertical resolution.
Default	Currently selected print system resolution.	
Notes	This command can also be used to scale the image. DPI resolutions above the original scanned resolution will reduce the image while DPI resolutions below the original scanned resolution will enlarge the image.	

EBAMode

Function	Sets the Encoded Byte Align flag, which indicates that the image data is broken into individual lines that are each aligned on a byte boundary.	
Syntax	**%%EBAMode *(true/false)***	
	true	Indicates that the data is encoded byte aligned.
	false	Indicates that the data is not encoded byte aligned.
Default	false	
Note	EBAMode must typically be used with Group 3 1-D images, which may or may not be from fax machines.	

ImageData

Function	Instructs the emulation to begin decompression of the image data using the currently set image options.
Syntax	**%%ImageData**
Default	None—no options.
Notes	You must specify **%%ImageSize** before **%%ImageData**. If you do not, the data following **%%ImageData** is absorbed with no effect on the file. This command begins reading the image data after the end of the current line. After the image, the input stream is flushed until the next set of **%%** characters is encountered.

ImagePosition

Function	Sets the image position (in 0.001" increments) from the upper-left corner of the page.	
Syntax	**%%ImagePosition *(x y)***	
	x	The horizontal location of the image's upper-left corner.
	y	The vertical location of the image's upper-left corner.
Default	0 0—Places the image in the upper-left corner of the page.	

ImageSize

Function	Sets the image size to be used for decompression of the image data that follows the **%%ImageData** command.	
Syntax	**%%ImageSize *(width height)***	
	width	The width of the image in pixels.
	height	The height of the image in pixels.
Default	None.	
Notes	This command must be used in order to decompress an image. This command must be sent before the **%%ImageData** command. If it is not, the image is ignored.	

InvertImage

Function	Indicates whether the black and white pixels in the image are reversed.	
Syntax	**%%InvertImage *(true/false)***	
	true	Indicates that the black and white pixels in the image are reversed.
	false	Indicates that the black and white pixels in the image are not reversed.
Default	false	

JobEnd

Function	Signals the end of a CCITT print job and resets the printer to the default mode. Ends the job and returns the printer to ESP mode.
Syntax	**%%JobEnd**
Default	None—no options.
Notes	If this command is omitted, the printer remains in CCITT emulation mode until the emulation wait timeout expires (Administration/Timeouts/Emul Timeout menu).

LineEnd

Function	Sets Line-End flags, which indicate whether CCITT end-of-lines are included in the image data.	
Syntax	**%%LineEnd *(true/false)***	
	true	Indicates that end-of-lines are required in the image data. Otherwise, an error results.
	false	Indicates that end-of-lines are not required in the image data but, if present, are accepted with no error.
Default	false	

PageEnd

Function	Instructs the emulation to eject the current page (whether or not any data has been printed to it) and clear the page memory.
Syntax	**%%PageEnd**
Default	None—no options.
Notes	You must include this command for a page to be printed. Image data must be included after this command. If an image has not been decompressed since the beginning of the job or since the last **%%PageEnd**, a blank page is ejected.

Rotation

Function	Sets the rotation to be used when the image is decompressed.		
Syntax	**%%Rotation *(degree)***		
	degree	0 90 180 270	0° (no) rotation 90° rotation 180° rotation 270° rotation
Default	0		
Notes	Rotation occurs about the current image position origin set by the **%%ImagePosition** command. If no **%%ImagePosition** command has been used, rotation occurs about the origin (0,0). Any rotation (except 0) about the default image position (0,0) causes the image to be rotated off the page. Therefore, any rotation other than 0° must coincide with a **%%ImagePosition** command.		

imPRESS

Using **%%IncludeFeature:emulation(impress)** QMS DOC, you can access the imPRESS full-page layout and graphics page description language. For details about imPRESS, see the *QMS imPRESS Programming Language* guide, provided on disk with your printer.

Optional Emulations

The QMS printer supports optional emulations, such as QUIC II. If an optional emulation is installed on the printer, the appropriate emulation options display in the Emulations submenu. Refer to that emulation's documentation for complete information.

❖

6

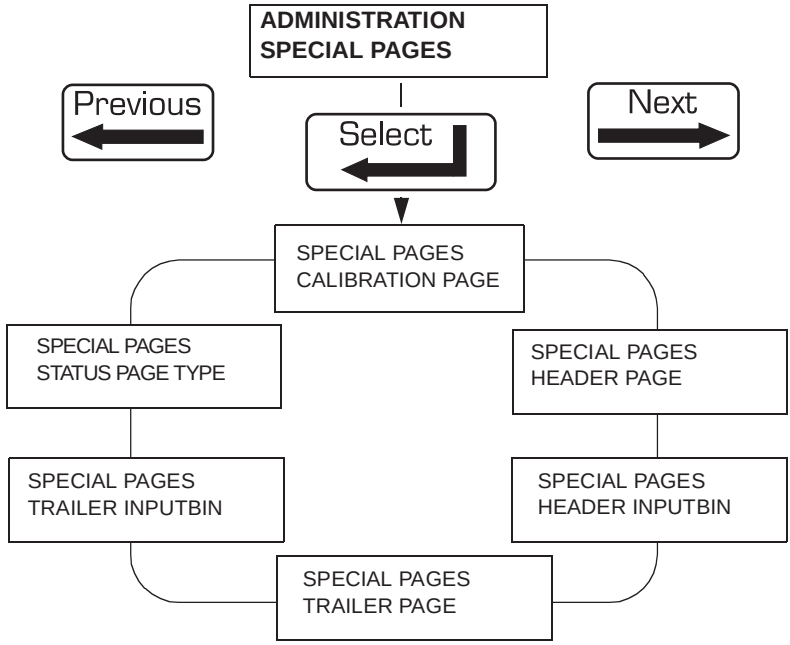
Special Pages and Startup Options Submenus

In This Chapter . . .

- Header and trailer pages
- Input and output bins for header and trailer pages
- Status page types
- Start-up options

The Special Pages Submenu

The options in the Special Pages submenu allow you to configure your printer to print header and trailer pages, and select the type of status page you would like to print.



Calibration Page

A calibration page helps you test and maintain optimal print quality. The calibration image contains a gray-scale chart that lets you check print density and gamma correction to get the best possible gray scaling from your printer.

In addition, the calibration page can serve as a quick reference to help you determine whether you need your lower or higher resolution for a print job. Simply print a calibration page at one resolution, and then reset the printer to the other and print another page. By compar-

ing the two pages, it's easy to see the difference in screens, in type quality, and in precision of curves and diagonal lines.

To print a calibration page, go to the Administration/Special Pages/ Calibration page menu. Choices are Yes and No with a default of Yes. Select Yes, and a calibration page prints when you exit from the menu.

Header Page

A header page is a separator page that prints before a print job to help users sort out their jobs. This option controls whether a header page prints before each job. This option is either On or Off with the default of Off. (See *QMS Crown Document Option Commands* for information on header page contents.)

Header Inputbin

This option selects the input bin from which the header page is printed. Upper selects the upper bin, Lower selects the lower bin, and LCIT selects the optional large-capacity or large-large-capacity input bin, if one is installed. The default value is Upper.

Trailer Page

This option allows you to configure if and when a trailer page is printed after each job. Trailer pages can help users sort out jobs. The choices are On, Off, On Error, and Errors Only. The default value is Off.

For LN03 Plus print jobs only, setting this option to On Error prints a trailer page (with error messages generated during processing and printing of your job) only if an error occurred. Setting it to Errors Only prints error messages on the trailer page and omits other trailer page information. (See *QMS Crown Document Option Commands* for information on the trailer page contents.)

Trailer Inputbin

This option selects the input bin from which the trailer page prints. Upper selects the upper bin, Lower selects the lower bin, and LCIT selects the optional large-capacity or large-large-capacity input tray, if one is installed. The default value is Upper.

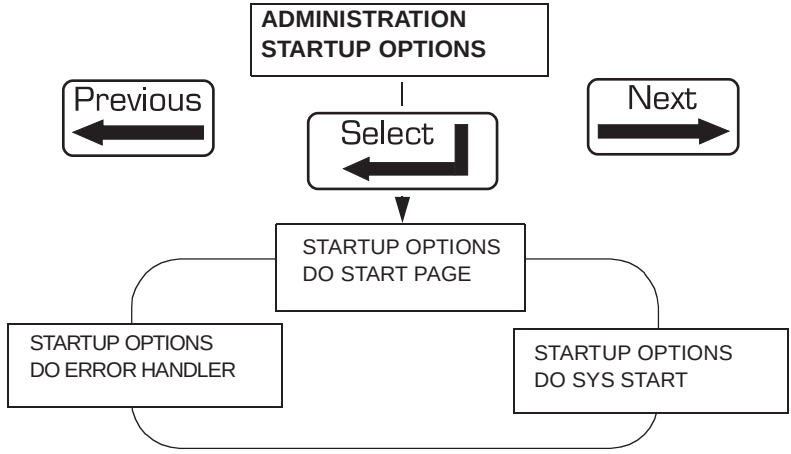
Status Page Type

This option allows you to choose between the two different status pages, Standard and Advanced. The default is Standard.

- The Standard page includes printer identification, settings, current memory configuration, timeouts, communication settings and input buffer sizes, and hard disk status. An angle bracket 0.5" (13 mm) from the lower-left corner of the page is provided to assist with image alignment.
- The Advanced form, which is several pages long, includes all the information from the Standard page plus current menu configuration settings and a list of available fonts.

The Startup Options Submenu

The options in the Startup Options submenu, shown below, allow you to configure your printer to run certain options every time the printer is turned on.



Do Start Page

The Do Start Page option allows you to decide whether the printer produces a start-up page each time it is turned on. The options are Yes and No with the default being Yes. This option takes effect when the printer is turned off and on again.

Do Sys Start

Sys Start is a PostScript file residing on the printer's hard disk. When Do Sys Start is enabled, the controller checks the hard disk for a SYS/START file each time it is turned on and executes the file. The options are Yes and No. The default is Yes.

Do Error Handler

This option activates a debugging tool that allows you to identify PostScript errors during a print job. In order for a change to this option to take effect, the printer must be turned off and on. The options are Yes and No. The default is No.

Refer to the *PostScript Language Reference Manual* (Adobe Systems Incorporated, Reading, MA: Addison-Wesley, 1990, ISBN 0-201-18127-4) for more information on PostScript errors.

❖

7

Memory Submenu

In This Chapter . . .

- Introduction to memory management
- Memory definitions
- Evaluation of your printing environment
- Memory clients

Introduction

Memory allows your printer to store and retrieve information that is required to perform many of its tasks. The memory requirements of each printer are dictated by the applications that are to be run.

The memory is divided among blocks called “memory clients,” each of which is dedicated to a specific printing purpose. QMS Crown printers provide you with the unique ability to distribute your printer’s memory among the various memory clients where it can best serve your specific printing needs. This chapter provides information on memory management so you can get the most from your QMS Print System.

Generally, there are two main reasons to reconfigure your printer’s memory:

- To achieve maximum performance
- To enable additional features

The ability to configure your printer’s memory does not necessarily mean that you must change your current configuration. If you are presently using all the features you need, and the printer is performing efficiently, you should not feel compelled to reconfigure your printer’s memory. Just remember that if your printing needs change, you can redistribute memory where you feel it would best meet your printing requirements. On the QMS 3225/2025 printers, you can also add memory to a maximum of 32 MB. (The QMS 3825 Print System comes with the maximum 32 MB of memory.)

QMS Memory Management

Managing the memory on your printer is much the same as managing your personal income. In money management, you have a certain amount of income and many ways of spending that income. You decide where that money goes according to what is important to you. There is no single correct way to manage money, but there is one best way for you according to your financial obligations.

The same is true for managing the memory on your printer. There is no single correct way for everyone to allocate printer memory. By evaluating your specific printing needs, you may find a way to configure your printer memory that is more efficient for you than the factory default settings. For example, if you use a large number of PostScript fonts of various point sizes, you may want to increase the amount of memory allocated to the area specified for PostScript fonts. Or you may want to increase memory to the area that minimizes slowdowns when collating large print jobs.

Memory configuration affects these things as well as the number of jobs that can be accepted by the printer, the number of options available simultaneously, the number of downloadable fonts and emulations that can be stored, and overall printer performance.

QMS Memory Definitions

Before you can configure your printer's memory efficiently, you must understand the different types of memory and how they work together. QMS Crown documentation uses the following memory terms:

Memory—Memory allows your printer to store and retrieve information. It is the space within your printer where information is stored while being actively worked on.

Memory Clients—A memory client is a specific printer function that has a dedicated block of memory. Each memory client controls certain features. When insufficient memory is allocated to a specific client, the features it controls may not be accessible.

Excess Memory —The memory remaining after providing all the memory clients with their specified amounts of memory is automatically added to the Display List client. When memory is needed for other clients, it can be removed from Display List and reallocated.

Storage—Storage is a device in or on which information can be kept. There are three main types of storage — ROM, RAM and hard disks.

ROM stores read-only data, RAM represents temporary storage, and hard disks hold information on a more permanent basis.

ROM (Read Only Memory)—This type of memory contains data and/or machine-executable instructions that can be read but not modified. On the QMS 3825/3225/2025 Print System, the operating system code, resident fonts, and resident emulations are stored in ROM. This information is not lost when the printer is turned off.

RAM (Random Access Memory)—RAM is the memory your printer uses to perform each task. It can be written to and read from. Once a task is complete, the memory is free again to be used for another file. This memory is volatile, so if your printer loses power while a file is being sent, you must resend the file. The number and type of features you can run on your printer simultaneously depend on the amount of RAM your printer has and how that RAM is distributed. The 3825 Print System comes with 32 MB of RAM, the maximum possible for the system. The 3225/2025 Print System comes with 16 MB of RAM which can be upgraded to 32 MB.

RAM Disk—Also called a virtual disk, the RAM disk is an area of RAM that is used to simulate an additional hard disk. Data can be written and read more quickly than on a hard disk, but a RAM disk loses any information stored on it when the printer's power is turned off. The frame buffer and spooling buffer are RAM disk clients.

Hard Disk—The QMS 3825/3225/2025 Print System comes standard with a 270 MB internal SCSI hard disk and can be upgraded to a 340 MB internal hard disk with up to six external hard disks. These hard disks serve as secondary storage for data like downloaded fonts and emulations. Hard disks are also used to increase the amount of collation that can be accepted and provide a secondary storage area for spooled data.

SCSI (Small Computer System Interface)—Pronounced "scuzzy," a SCSI port allows you to connect up to six hard disks, providing storage for fonts, emulations, and other files. The SCSI port is optional on the 3825 Print System but standard on the 3225/2025 Print System.

Volatile Memory—This type of memory can be lost when the printer loses power. For example, most RAM is volatile.

Non-volatile Memory—This type of memory is not lost when the printer loses power.

NV RAM—This is a protected form of RAM, used to store information such as your printer's Configuration menu. Configuration options you have chosen, such as emulations, memory settings, and input bins, are saved to this non-volatile RAM. This information is not lost when you turn off your printer.

Physical Memory—The physical memory on your printer is equal to the amount of RAM installed.

Virtual Memory—Virtual memory extends the effective size of the printer's memory by using a disk file or swap file to simulate additional memory space. It enables the hard disk to accept data swapped from RAM, temporarily freeing the RAM for other tasks.

Spool —Spooling is temporary storage to hold print jobs until the printer is available to process them.

Evaluation of Your Printing Environment

The first step in allocating your printer's memory is to define your printing needs. Each of your printer's features requires a minimum amount of memory. If you use a feature, you must allocate enough memory to the client which controls it. On the other hand, if there are features you do not use, you can take excess memory from the clients which control the unused features and add it to other clients that need additional memory.

Printer Features and Memory Clients

To get started with your memory configuration, check the following table to see which features you use and which memory clients control them. Detailed descriptions of the clients begin on page 7-8.

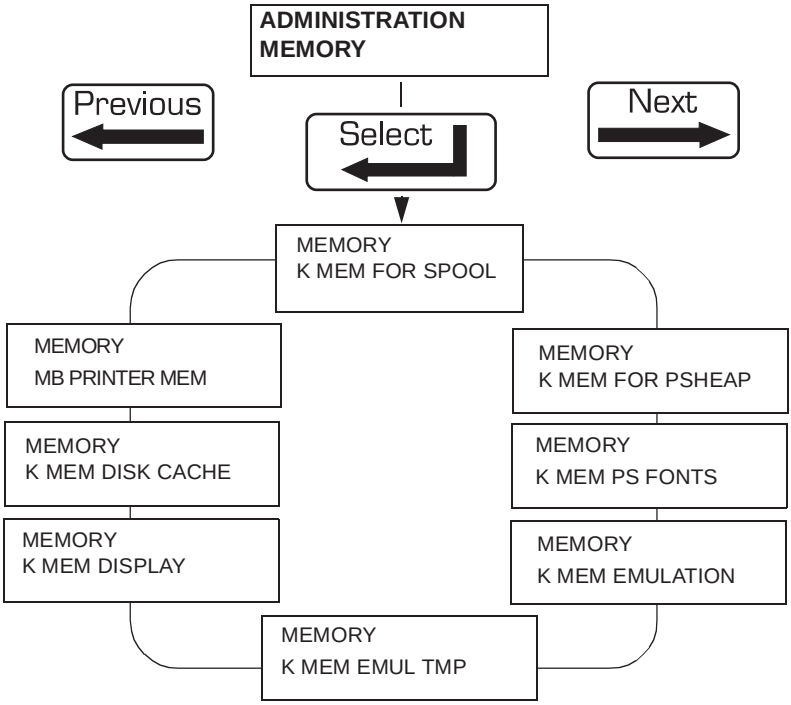
Feature	Memory Client	Notes
Hard disk	Disk Cache	An internal hard disk and optional external hard disks provide storage space for downloaded fonts and emulations. They also improve collation performance, hold spooled data and provide virtual memory capabilities. You can access all this more quickly if you dedicate sufficient memory to the Disk Cache client. See the formula for setting Disk Cache on page 7-14.
Resident emulations	Emulation	The emulation client may need extra memory if you print complex non-PostScript jobs in different non-PostScript emulations.
Non-resident emulations	Temporary Emulation	If you use a downloaded optional emulation, such as QUIC II, you may improve performance by increasing the memory in Temporary Emulation.
Number of users	Spool Buffers	Additional memory in this client increases the number of jobs that can be accepted for spooling simultaneously, freeing host systems more quickly. However, if too much memory is allocated here, throughput can be slowed because of the time involved in processing a large spool.

Download-able fonts	PostScript Font Cache	If you use many different fonts in many different sizes, you may need to dedicate memory to the PostScript Font Cache: — 128 to 256 KB for 300x300 dpi — 000 to 000 KB for 400x400 dpi — 256 to 512 KB for 600x600 dpi **Remember that performance for RAM based fonts decreases if this client is set above its default.**
Number of graphics	Display List	If your files contain many graphics, you will want to increase the amount of memory to the display list client. See page 7-12 for specific suggestions.
Fonts, forms, and operators	PostScript Heap	If you use many downloaded fonts, forms, and operators, you may need to increase PostScript Heap memory. **Do not increase this client unless you receive a virtual memory error**.
Collating	Display list	Increasing the memory in the Display List client can improve collation performance.

The following sections introduce the memory submenu and the memory clients, with detailed suggestions for manipulating the various memory clients.

Memory Submenu

This submenu allows you to allocate the system memory (RAM) among the various memory clients. Read the following sections to learn how to use the Memory submenu to best configure your printer's memory.



Memory Clients

Memory clients are specific printer functions with dedicated blocks of memory that enable printer features. Each of the memory clients is located in the Administration/Memory submenu of your printer's Configuration menu. When you allocate memory to a specific client through the control panel, it is allocated in kilobytes (KB). Each time

you make changes in the Memory submenu, print out a status page to confirm the memory reallocation. (Refer to chapter 1, “Introduction,” for information on how to print a status page.)

» Note: The value for each memory client must be divisible by 4 KB. If you enter a value that is not evenly divisible by 4 KB, it is converted to the next lower value that is divisible by 4 KB. For example, if you enter 102 KB, the value is lowered to 100 KB, assuming there is enough memory available.

Spool Buffers

Also known as Host Input and K Mem for Spool, this client stores incoming data from all the interfaces until the physical print engine can print the job. When enough memory is allocated to this client, the host becomes free more quickly, and the number of jobs that the printer can accept simultaneously is increased. You should consider the amount of data being sent simultaneously when allocating memory to the spool buffer. Additional hard disks can supplement this client with additional memory needed for spooling. The system will not allow you to set this memory client too low. The default is Variable.

» Note: While increasing the size of this client is beneficial in reducing network traffic, throughput speed is not necessarily increased.

Dedicating Memory to an Interface — Each host interface connection on the printer has its own submenu. Within each of these submenus is an option for allocation of Min K Spool. Use the Min K Spool setting under each interface in the Communications submenu to dedicate memory to an interface. The value of an interface’s Min K Spool is the number of kilobytes dedicated to spooling jobs received over that interface. The default value for each interface’s dedicated spooling space is 15 KB.

Min K Spool is a numeric value. The maximum amount of memory that you may dedicate to a single interface is the amount of excess memory available in the printer. The minimum amount is 0 KB.

» Note: Setting the value to 0 KB does not disable the interface. Instead, unallocated memory is divided among any interfaces with a Min K Spool value of 0 KB.

Increasing an interface's Min K Spool value subtracts from memory available for other purposes. For example, setting the serial interface Min K Spool to 20 KB takes an additional 5 KB away from the available memory. Increasing an interface's dedicated spooling memory does not change the interface's priority. All jobs received by the printer are handled on a first-come, first-served basis, regardless of the interface receiving the jobs.

If you do not use one or more of the printer interface connections, you may disable that interface. Any disabled interface's Min K Spool area (15 KB) is added to the excess memory in the Display List. Each interface submenu has a mode setting that allows you to disable it.

PS Heap

Also known as K Mem PS Heap, PostScript VM, and Virtual Memory, this client holds downloaded fonts, PostScript operators, and forms.

Inefficiently coded PostScript jobs can consume an infinite amount of virtual memory or leave objects in the PS (PostScript) heap after the print jobs are completed, leading to virtual memory errors. If not enough memory is allocated to the PS heap, the job cannot print.

Increasing the memory allocated to this client allows more complex jobs to print and increases the number of fonts that can be downloaded to virtual memory. However, this client should be increased only if you receive a virtual memory error when attempting to print a job or download a font and only in small increments until the error message goes away. Excess memory in the PS heap is not used. The system will not allow you to set this memory client too low. The maximum setting is 99999. The default is Variable.

PostScript Font Cache

Also known as K Mem PS Fonts and Font Cache, this memory client stores bitmapped representations of previously scaled PostScript fonts. This process reduces the number of times a font must be converted from outline form to bitmap form. Printing pages that have characters already stored in the font cache is much faster than printing characters not yet in the font cache.

As the font cache memory fills, the printer erases bitmapped characters that have been in the cache longer than the others without being used to make room for new characters. By increasing the memory allocated to this client, the printer can store more characters and spend less time erasing and replacing characters in the cache.

Normally, you do not need to change this memory client unless you use a large number of fonts at various point sizes. If you do, you may allocate additional memory to this client to improve printer performance. There is no specific formula to use in figuring the amount of memory required by the font cache, but after a certain point, large font caches cause the printer to take longer to print than smaller font caches because of the search time through the cache.

The recommended font cache size is in the following ranges:

- 128 KB to 256 KB for 300 dpi printing
- 200 KB to 400 KB for 400 dpi printing (3225/2025 Print Systems)
- 200 KB to 400 KB for 600 dpi printing (3825 Print System)

You should experiment to see what font cache size works best for you. The system will not allow you to set this memory client too low. The maximum setting is 99999 and is related to the total amount of memory and the amount of memory configured to the other clients. The default is 256 KB.

Emulation

Also known as K Mem Emulation, this client is used to store any available emulations, such as CCITT, LN03 Plus, HP PCL, HP-GL, and imPRESS. Increasing this client's memory allows more complicated non-PostScript jobs to print and allows larger emulations or multiple emulations to be loaded and ready to process jobs.

If an emulation is loaded to process a print job and there is not enough memory in the emulation client, another emulation already loaded may be unloaded automatically to obtain enough memory. If you notice a delay in printing between jobs that have different non-resident emulations, it is possible that the emulations are having to reload each time they are run. Adding to the emulation client may

eliminate the unloading and reloading of these emulations and, consequently, increase throughput.

Also, increase the emulation client if you are printing complex non-PostScript jobs that may require more memory to process correctly. The system will not allow you to set this memory client too low. The maximum value is 99999. The default is Variable.

Temporary Emulation

Also known as K Mem Emul Tmp and Emulation Temporary, this client sets the amount of system memory to be used by non-PostScript emulations for storing downloaded fonts, forms, and macros. By dedicating a portion of memory to this client, QMS Crown printers can perform “context switching,” which is the ability to retain downloaded fonts and forms even after the printer changes from one emulation to another. Context switching prevents unnecessary repetitive downloading and traffic congestion on networks.

Normally, this memory client does not need to be changed unless you plan to download many different non-PostScript fonts. The system will not allow you to set this memory client too low. The maximum setting is 99999 and the default is Variable.

Display List

Also known as K Mem Display, the display list stores compressed representations, or blocks, of the pages to be printed. It takes approximately 1 compressed block for a 8.5" x 11" text page, 4 compressed blocks for an 8.5" x 11" page that includes some graphics, and as many as 500 compressed blocks for an extremely complex 8.5" x 11" page.

Many pages of compressed blocks belonging to multiple print jobs can be stored at the same time in the display list. If enough memory is allocated to this memory client, a page can always be ready to print as soon as another page has been imaged to the print engine. It takes approximately 32 KB of memory for each compressed block on your QMS 3825/3225/2025 Print System.

Increasing the amount of memory in this client may improve printing throughput and minimize slowdowns due to duplexing, collating, or printing complex pages. When large jobs are sent to the printer for multiple collated copies, the printer may collate a chunk — perhaps 50 pages of each copy — before starting another chunk. Increasing the Display List memory can increase the size of collated chunks so you have less hand sorting to do.

The Display List is also the excess memory client. Any unallocated memory is stored in this client. The system will not allow you to set this memory client too low. The maximum value is 99999 and the default is Variable.

Disk Cache

Also known as K Mem Disk Cache, the Disk Cache is a high-speed temporary buffer for data going to and from the hard disk drive. It can speed the printer in two ways:

- Information such as fonts or logos that may be referenced frequently may still be in the cache and may not have to be pulled off the disk every time it is needed.
- When writing to disk, information can be held in the cache temporarily until it is more convenient to write to disk.

For example, if many fonts are stored on disk, they can be accessed faster by increasing the disk cache size. If no hard disk is used, the disk cache should be set to zero. However, when hard disks are installed they are not available until the disk cache client is increased.

The amount of memory needed for the disk cache client depends on the number of disks and their sizes and on the number of subdirectories on each disk. As long as there is enough memory in the disk cache, all disks are accessible. If insufficient memory is allocated to the disk cache, some disks may be seen while others are not.

» *Note: Accessibility of disks is also affected by cabling. See chapter 8, "Engine, Miscellaneous, and Disk Operations Submenus," for details about cabling requirements.*

The recommended amount of memory for the disk cache client is:

- 120 KB minimum, plus
- .5 KB per MB of disk storage up to 256 MB, plus
- 0.25 KB per MB of disk storage between 256 MB and 512 MB

» Note: As the size of the disks double, the needed disk cache per MB of storage is reduced by half.

For example, the recommended disk cache client size for a 270 MB hard disk would be 252 KB and for a 340 MB hard disk 269 KB. The system will not allow you to set this memory client too low. The maximum value is 99999 and the default is Variable.

Frame Buffer

Also known as K Mem Framebuff, this non-configurable client holds rasterized or bitmapped images of page faces (single sides of duplexed pages) which are ready to be sent to the physical print engine.

MB Printer Mem

This non-configurable information field indicates the total virtual memory space available to be split among various memory clients.

System Memory

Also listed as System Use on the status page, this non-configurable information field is the amount of RAM that is used to run the printer's operating system. It is never increased or decreased. The system memory subtracted from the total amount of RAM identifies the amount of RAM available for all the other memory clients.

❖

8

Engine, Miscellaneous, and Disk Operations Submenus

In This Chapter . . .

- Fine tuning image alignment
- Selecting default paper
- Naming input and output bins
- Using the letterhead and rotate duplex options
- Clearing a maintenance message
- Other miscellaneous options
- Hard disk operations

Engine Submenu

The options in the Engine submenu allow you to adjust image alignment, select a default paper size, name the input and output bins, set resolution and gamma correction, and use two advanced duplexing options. This submenu also allows you to turn off a `MAINTENANCE DUE` message after maintenance has been performed.

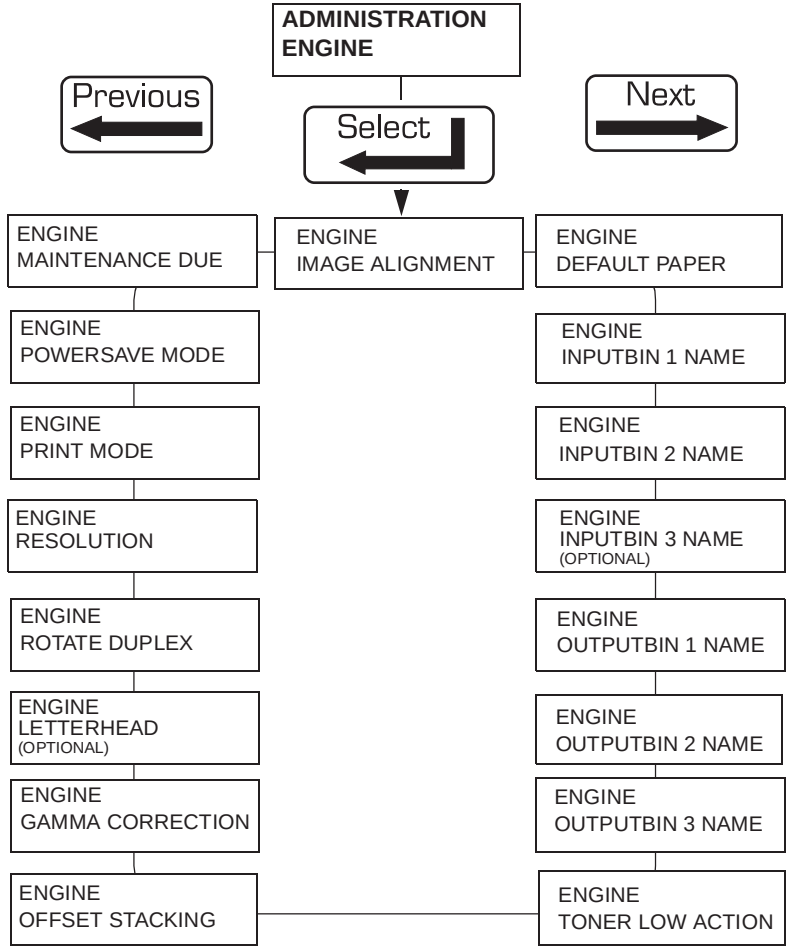


Image Alignment

Image Align is a numeric value for adjusting the placement of the printed image on the page. There are four types of image alignment: horizontal offset, duplex horizontal offset, vertical offset, and duplex vertical offset. Values for each setting range from 0 to 300 (1"/25.4 cm) pixels with a default of 100.

Usually, you do not need to use image alignment to adjust image placement. To check the alignment, print a standard status page on letter-size paper. An alignment bracket is printed 1/2" (13 mm) from the lower-left corner of the paper. If the measurements are off, use the Image Align option to move the image in pixel increments (1/300" or 0.08 mm).

Horizontal and Vertical Controls

Horizontal and vertical controls are based on the leading edge of the paper. Although they are consistent, they may appear to be reversed in function, depending on the leading edge of the paper.

- **Paper fed long edge first, including letter-size, with portrait-oriented printing —** horizontal and vertical operate as expected.
- **Paper fed long edge first, including letter-size, with landscape-oriented printing —** horizontal and vertical appear reversed.
- **Paper fed short edge first, such as 11x17**, with portrait-oriented printing — horizontal and vertical operate appear reversed.
- **Paper fed short edge first, such as 11x17**, with landscape-oriented printing — horizontal and vertical operate as expected.

Image Alignment Guidelines

Simplex Pages — Use this table to determine which value to adjust and whether to increase or decrease it to get the desired results:

To move image		up	down	right	left
with this feed edge	**and this orientation**	**adjust this control:**			
short edge	**portrait**	horizontal below 100	horizontal above 100	vertical above 100	vertical below 100
short edge	**landscape**	vertical below 100	vertical above 100	horizontal below 100	horizontal above 100
long edge	**portrait**	vertical above 100	vertical below 100	horizontal above 100	horizontal below 100
long edge	**landscape**	horizontal below 100	horizontal above 100	vertical above 100	vertical below 100

Duplex Pages — Use this table to determine which duplex value to adjust and whether to increase or decrease it to get the desired results. Duplex image alignment settings affect only the front face of the page**.** Use simplex settings to adjust the back face.

To move image		up	down	right	left
with this feed edge	**and this orientation**	**adjust this duplex control:**			
short edge	**portrait**	horizontal above 100	horizontal below 100	vertical below 100	vertical above 100
short edge	**landscape**	vertical above 100	vertical below 100	horizontal above 100	horizontal below 100
long edge	**portrait**	vertical below 100	vertical above 100	horizontal below 100	horizontal above 100
long edge	**landscape**	horizontal above 100	horizontal below 100	vertical below 100	vertical above 100

Default Paper

The Default Paper option is the paper type the printer uses if a print job requests the default input bin, but the default input bin is not inserted. The choices are Letter or A4. The default is Letter.

Input Bin and Output Bin Names

The choices for input bin and output bin names are alphanumeric values that allow you to assign a logical name to each bin. For example, you may want to load the upper input bin (1) with pre-punched paper and assign it the name “3hole.” Once you have assigned a name, users connected to the printer can use QMS DOC commands to select the input bin “3hole” if they want their job printed on pre-punched paper. When entering these names, keep in mind that they are case sensitive, and must be entered exactly as they are first named.

The names for the bins may be up to 16 characters long. The default names for the input bins are “upper” (input bin 1), “lower” (input bin 2), “lcit” (optional large-capacity input bin), and “llcit” (optional large-large capacity input bin). The default names for the output bins are “upper” (output bin 1), “lower” (output bin 2), “side” (face-up tray), and “lcos” (optional large-capacity output stacker).

Toner Low Action

This option allows you to decide whether to continue printing when the engine senses it is low on toner. The choices are Stop and Continue, and the default is Stop. If the option is set to Continue, the printer can print about 100 more pages, but print quality is diminished; if set to Stop, insert a new toner cartridge.

Offset Stacking

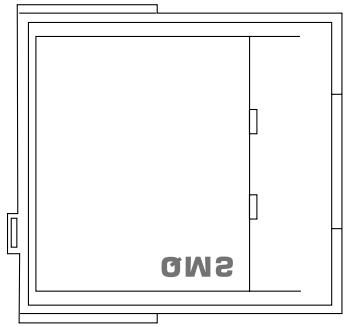
The Offset Stacking option allows you to choose whether consecutive print jobs are separated by slightly shifting the placement of each job in the output bin. The choices are Enable and Disable. Enable is the default.

Gamma Correction

Gamma correction improves printer output by creating a more gradual change from white to black. However, because some jobs may benefit from the sharper contrast in uncorrected output, you have the option of turning off gamma correction. The choices are 0 (gamma correction is turned off) and 1 (gamma correction is turned on). The default is 1.

Letterhead

This option appears only if the duplexing unit is installed. Simplex and duplex jobs normally exit the printer with opposite orientation. The letterhead option allows you to print both simplex and duplex jobs with the same orientation, so letterhead paper can be loaded from the same tray for either type job and output does not require sorting. If you are printing in the letterhead mode, letterhead paper must be loaded face down in the input bins, as shown below. You may notice a decrease in the printing speed depending on the mix of simplex and duplex pages. The options are On and Off with Off being the default. See the chart following “Rotate Duplex” for further information.



Rotate Duplex

This option, which appears only when the optional duplexing unit is installed, rotates the image 180° to accommodate duplex printing on pre-punched letterhead paper. Feeding prepunched paper with the punched edge first can cause paper jams. If you set rotate duplex to No, you can feed the paper face down with the un-punched edge first. The options are No and Yes and the default is Yes. See the chart below for further information.

Rotate Duplex	Letterhead	Effect
Yes	Off	For use with plain paper where simplex and duplex jobs are not mixed. Simplex jobs print with top away from you as you stand at the control panel; duplex jobs print with the top toward you, so sorting is required. This is the default setting and allows the fastest printing speeds.
Yes	On	For use with letterhead paper. Load face down with top toward you (as shown above). Both simplex and duplex jobs print with the top toward you so no manual sorting is required, but print speed is reduced.
No	On	For use with prepunched letterhead. Load paper face down with top away from you. Both simplex and duplex jobs print with the top away from you, so no manual sorting is required, but print speed is reduced.
No	Off	For use with plain paper where simplex and duplex jobs are mixed. Simplex and duplex jobs print with the top away from you so no sorting is required. Print speed is normal for simplex jobs.

Resolution

This option sets the default printer resolution for documents. Each printer has a lower resolution, 300x300 dpi, for everyday memos and drafts, and a higher setting for camera-ready work. The higher setting on the 3825 Print System is 600x600 dpi. The higher setting on the 3225/2025 Print System is 400x400 dpi. The higher setting is the default.

» *Note: To extend the life of the motor, when the 3825 printer is set to 600x600 dpi, the engine automatically throttles back to 300x300 dpi speed after five minutes of inactivity. However, when a print job is sent, it automatically resets to 600x600 dpi.*

Print Mode

The Print Mode allows you to set the print intensity for your jobs, which can be useful for specialized graphics or CAD jobs. Choices are Normal, Light, and Dark, with a default of Normal.

Powersave Mode

The Powersave Mode allows you to select a time limit for the printer to stay at full power when it is not in use. After that time expires, the printer automatically switches to a low-power state, with the engine on and the fuser off. When another job is sent, it takes 2.5 minutes for the printer to warm up. You may turn off the option, so that the printer remains at full power no matter how long it goes unused, or you may select a time limit of 15 minutes, 30 minutes, 1 hour, 2 hours, or 3 hours. The default is 1 hour. When the printer is in Powersave Mode and the time limit has elapsed, the message window displays `ENERGY SAVER` instead of `IDLE`.

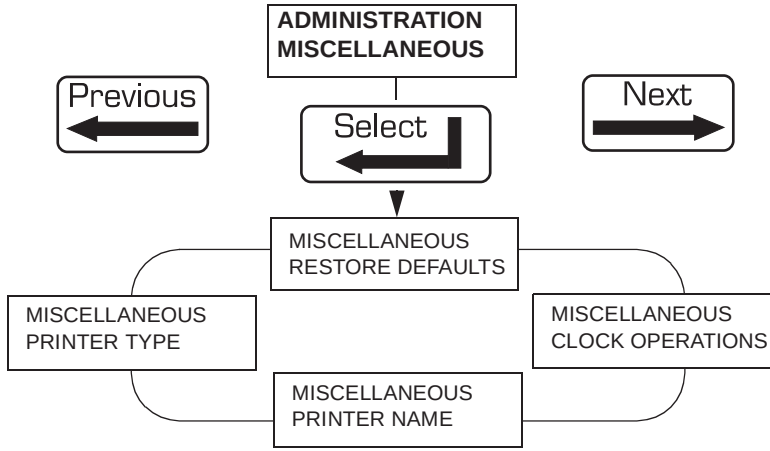
Maintenance Due

This option appears in the configuration menu only when there is a maintenance message in the message window. Use this option to clear the message after completing the appropriate maintenance. The options are On and Off. To clear the message, select Off. The

default is On. Refer to chapter 3, “Periodic Maintenance,” of your user’s guide for additional information on maintenance.

Miscellaneous Options

The options in the Miscellaneous submenu of the Administration menu allow you to restore the factory default values to all configuration menu options, to adjust the printer’s internal clock, to change the printer name, and to change the printer type.



Restore Defaults

The Restore Defaults option resets all configuration options to their factory default values. The factory default values are listed in appendix D, “Factory Default Settings,” of your user’s guide. The Restore Defaults option takes effect immediately. The choices are Yes and No, with No being the default.

Clock Operations

This option is used to set the printer's date and time that appears on header and trailer pages. This has been pre-set at the factory. The two choices are Set Clock and Adjust Clock.

Use Set Clock to set the day, month, year, and time (in military time). Day, month, and year are listed choices, and the time is a numeric value. The default is variable.

Adjust Clock is used to correct the clock if it is running faster or slower than real time. The maximum value is 155 seconds per month and the minimum value is -155 seconds per month. The default is 0 seconds per month.

Printer Name

The Printer Name option, an alphanumeric string of up to 31 characters, assigns a name to the printer so that it can be easily identified on a multi-printer network. The default value is QMS 3825 Print System, QMS 3225 Print System, or QMS 2025 Print System, depending on which system you have.

Printer Type

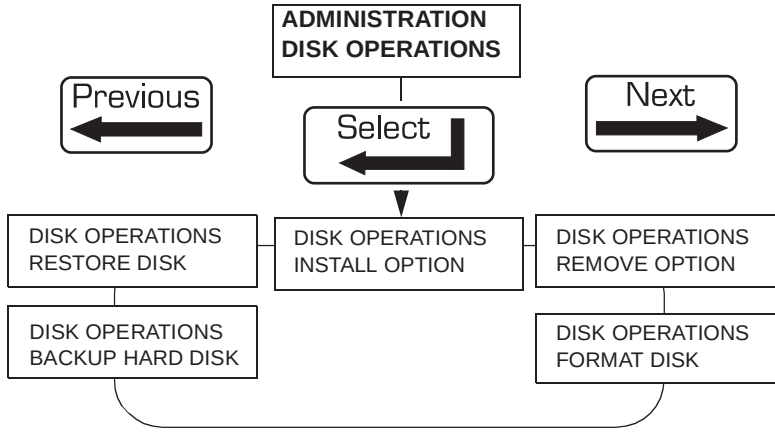
Use the Printer Type option to indicate the printer type on an AppleTalk network. For example, set the printer type to "LaserWriter" if you have Macintosh computers on your network. Or, you can specify a different printer type if you want to hide the printer from Macintosh computers. The default value is LaserWriter.

The Disk Operations Submenu

The options in the Disk Operations submenu allow you to perform file operations using the printer's internal hard disk and optional external hard disks.

» Note: Always turn on all external hard disks before turning on the printer.

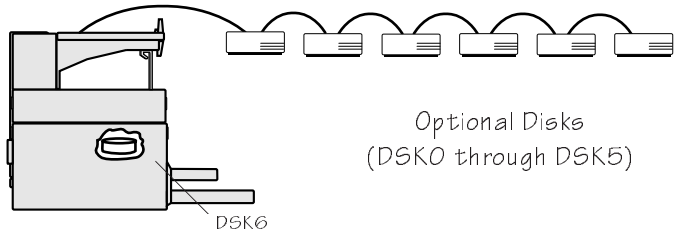
The QMS 3825/3225/2025 Print System supports an internal hard disk and up to six optional external hard disks. These disks increase the job spooling capacity of the printer and provide ample space for optional emulations, permanent downloading of fonts, or user file storage. This section explains how to use the Disk Operations submenu (shown below) to install and remove optional fonts and emulations), back up or restore disk files, and format a new disk.



Identifying Hard Disks

The hard disks are identified by their device numbers. Your printer has an internal hard disk with a device number of DSK6. If optional

external hard disks are attached to the printer, you can configure their device numbers in a range from DSK0 to DSK5.



» Note: When adding more than three external hard disks, you must follow all cabling and termination recommendations of ANSI X3T9.2 Small Computer System Interface-2 precisely to ensure optimal performance. Otherwise, the signal may deteriorate to such a degree that disks farther down the chain are not accessible. We recommend that from the first time you add an external hard disk, you follow the SCSI specification instructions regarding cabling and termination. Then it should never be necessary to recable earlier connections if you add additional disks. To obtain a copy of the specification, contact Global Engineering Documents at 1 (800) 854-7179.

If the internal hard disk is removed or an external hard disk is not turned on, the printer does not reset non-volatile RAM to the factory defaults.

Installing Optional Fonts and Emulations

Optional fonts and emulations for your QMS printer are supplied on 3.5" 1.44 MB disks. Installing optional fonts and emulations requires copying the contents of the disks to the printer's internal hard disk or to an optional external hard disk, using the Install Option selection from the Disk Operations submenu.

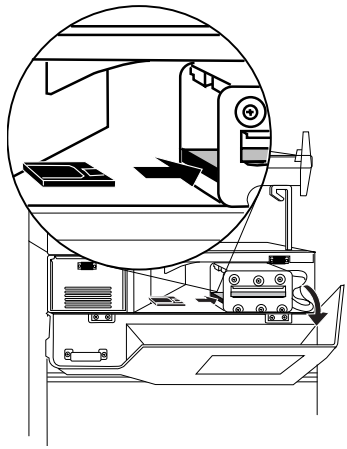
Optional fonts and emulations may be installed through the printer's floppy disk drive or from a PC through the printer's parallel or serial port. Which method you use depends on the font or emulation disks you have. If your font or emulation disks are labeled

- DOS/INTERNAL, use the printer's floppy disk drive to install them.
- *xx*.ps or *xx*.eps, use your PC and the printer's parallel or serial port.

Procedure for Using the Printer's Floppy Drive

1 **Press the Online/Offline key to take the printer off line.**

2 **Pull the control panel assembly away from the front of the printer. The floppy disk drive is located inside the printer.**



3 **Use the control panel to display** `DISK OPERATIONS` **on the bottom line of the message window.**

4 **Press the Select key to enter the Disk Operations submenu.**

5 **Press the Next key until** `INSTALL OPTION` **displays on the bottom line of the message window.**

6 **Press the Select key again to install an option.**

7 **Press the Next key until the address of the target disk (the destination of the optional emulation) displays on the bottom line of the message window.**

8 **Press the Select key to select the address.**
The display prompts you to insert one of the disks containing the optional emulation in the printer's floppy disk drive.

9 **Insert the disk.**
The message window displays `READING DATA` until the contents of the disk have been copied to the hard disk. When the copy process finishes, the message window displays `INSTALL COMPLETE`.

10 **Press the Menu key to return to the Install Option selection.**

11 **Press the Online/Offline key to prepare the printer for receiving data from the host.**

12 **Turn the printer off and back on again.**
The printer must be rebooted to complete the installation.

Procedure for Using the Printer's Parallel or Serial Port

If necessary, connect the PC to the printer's parallel or serial port.

1 **Turn on the printer, and wait for `IDLE` to appear in the message window.**

2 **Insert the emulation disk in your PC's 3.5" disk drive, and at the DOS prompt change to that drive (for example, if you're using the A drive, type a:↵).**

3 **Send the emulation to the printer's hard disk.**

» *Note: If more than one hard disk is available, the emulation automatically installs itself on the disk with the most free storage space.*

- If your PC and printer are connected through the parallel port, type

  ```
  copy /b *.ps lpt#↵
  ```

  where # is 1 to 3 and /b refers to binary files.

- If your PC and printer are connected through the serial port, type

  ```
  copy /b *.ps com#↵
  ```

  where # is 1 to 4 and /b refers to binary files.

4 When the downloading is complete, reboot the printer.

Removing Fonts and Emulations

Use the Remove Option selection if you need to remove an installed option from the printer's hard disk. To remove an option, you need the original 3.5" disk containing the option files. (The Remove Option selection compares the contents of the disk with the contents of the hard disk. Matching files are then deleted from the hard disk.)

1 Use the control panel to display the Disk Operations submenu.

2 Before you remove a font or emulation, the printer should be on and idle.

3 Pull the control panel assembly away from the front of the printer. The floppy disk drive is inside the printer. (See the illustration in the "Installing Optional Fonts and Emulations" section earlier in this chapter.)

4 Press the Select key to enter the Disk Operations submenu; then press the Next key until `REMOVE OPTION` **displays on the bottom line of the message window.**

5 Press the Select key again to select `REMOVE OPTION`**; then press the Next key until the address of the hard disk containing the optional emulation displays on the bottom line of the message window.**

6 Press the Select key to select the address of the emulation.

7 The display prompts you to insert a floppy (the disk containing the original optional emulation files) in the floppy disk.

The message window displays READING DATA until the matching files on the hard disk have been deleted.

8 **When the removal process finishes, the message window displays** REMOVE COMPLETE**. Press the Menu key to return to the Remove Option selection.**

9 **Press the Online/Offline key to prepare the printer for receiving data from the host.**

Formatting a Disk

Use the Format Disk selection to perform a DOS format of a 3.5" 1.44 MB disk. You may also use this selection to format the printer hard disk although doing so erases all contents of the disk.

1 **Use the control panel to go to the Disk Operations submenu.**

Before formatting a disk, the printer should be on and idle.

2 **Pull the control panel assembly away from the front of the printer.**

The floppy disk is located inside the printer. (See the illustration in "Installing Optional Fonts and Emulations," earlier in this chapter.)

3 **Press the Select key; then press the Next key until** FORMAT DISK **displays on the bottom line of the message window.**

4 **Press the Select key again; then press the Next key or Previous key until the address of the disk to be formatted displays on the bottom line of the message window.**

(The floppy is FLP0, the internal hard disk is DSK6, and the external hard disks are DSK0 - DSK5).

5 **Press the Select key. The message** ARE YOU SURE? **displays. If you are sure you want to format the disk, press the Select key again.**

The message window displays FORMATTING.

If you decide that you do not want to format the selected disk, press the Menu key. This takes you back to step 3, where you

can select a different disk to format or you can exit by pressing the Online/Offline key.

6 **When the format process finishes, the message window displays** FORMAT COMPLETE**. Press the Menu key to return to the Format Disk selection; then press the Online/Offline key to prepare the printer for receiving data from the host. If you formatted a hard disk, the printer automatically reboots.**

Backing Up the Hard Disk

Like any hard disk, your printer hard disks should be backed up regularly. Use the Backup Hard Disk selection from the Disk Operations submenu to perform a full backup (all files stored on the hard disk) or an incremental backup (only files dated after the last previous backup). Refer to the instructions in Chapter 2, "Daily Operations" of your user's guide for instructions on using the printer control panel.

» Note: The printer's floppy disk drive requires a 3.5" 1.44 MB disk.

1 **Before backing up a hard disk, the printer should be on, and** IDLE **should display in the message window.**

2 **Pull the control panel assembly away from the front of the printer.**

The floppy disk is located inside the printer. (See the illustration in the "Installing Optional Fonts and Emulations" section, earlier in this chapter.)

3 **Use the control panel to return to the Disk Operations submenu.**

4 **Press the Select key; then press the Next key until** BACKUP HARD DISK **displays on the bottom line of the message window.**

5 **Press the Select key again; then press the Next key until the address of the hard disk to be backed up displays on the bottom line of the message window.**

6 **Press the Select key; then press the Next or Previous key to choose between Full or Incremental back up.**

7 **Press the Select key again. When prompted by the display, insert a floppy disk in the drive (a blank disk if you are performing a full back up or your most recent back-up disk if you are performing an incremental back-up).**

8 **Press the Select key to begin backing up the hard disk.**

The message window displays COPYING DATA. If the backup requires more than one floppy disk, the message window prompts you to insert another floppy.

» *Note: If the back-up disk has not been formatted when the backup begins, the printer automatically formats it. If the disk is not empty, the message* FLOPPY NOT EMPTY *displays in the message window. If the disk has been write-protected, the message* WRITE PROTECT *displays in the message window. Remove the disk, slide the write-protect tab down, return the disk to the drive, and start over at step 4.*

9 **When the contents of the hard disk have been backed up, the message window displays** BACKUP COMPLETE**. Press the Menu key to return to the** BACKUP HARD DISK **selection.**

10 **Press the Online/Offline key to prepare the printer for receiving data from the host.**

Restoring the Hard Disk

Use your back-up disks to restore the contents of the hard disk in the event of a hard disk failure. Refer to the instructions earlier in this manual for using the printer control panel.

1 **Pull the control panel assembly away from the front of the printer.**

The floppy disk is located inside the printer. (See the illustration in the “Installing Optional Fonts and Emulations” section, earlier in this chapter.)

2 **Use the printer control panel to locate the Disk Operations submenu.**

3 **Press the Select key to enter the Disk Operations submenu. Press the Next key until** `RESTORE HARD DISK` **displays on the bottom line of the message window.**

4 **Press the Select key. When prompted by the display, insert your back-up disk in the floppy disk drive.**

You must insert the back-up disks in sequence. If you insert a disk out of sequence, the message `SEQUENTIAL ERROR` displays in the message window. Remove the disk and insert the correct one to continue.

5 **Press the Select key to begin restoring the hard disk.**

The message window displays `COPYING DATA`. When the contents of the floppy disk have been copied to the hard disk, the message window displays `RESTORE COMPLETE`.

6 **If you have more than one back-up disk, repeat steps 4 through 6 for each disk.**

7 **Press the Menu key to return to the Restore Hard Disk selection.**

8 **Press the Online/Offline key to prepare the printer for receiving data from the host.**

❖

A

QMS Customer Support

In This Appendix. . .

- Sources of customer support
- QMS world-wide offices

Sources of Support

Several sources of help and information are available, depending on the type of help you need:

Your QMS Vendor

Your local vendor (the one from whom you bought the printer) may be best equipped to help you. Your vendor has specially trained service technicians available to answer questions and the equipment to analyze your printer problems.

Your Application Vendor or Manufacturer

Often, “printing” problems have more to do with the application being used than with the printer. In this case, the application vendor or manufacturer is the best source of help.

Q-FAX

Q-FAX, a QMS information retrieval service, provides application notes, technical support notes on common printing problems, and information about printer specifications, options, accessories, consumables, and prices.

In the United States and Canada, call (800) 633-7213 to reach Q-FAX. In all other countries, call (334) 633-3850. When you call, have your fax number handy or place the call from your fax machine’s handset.

You can choose to have either a directory of currently available documents on a particular topic or a specific document sent to you. The first time you call, request the directory by pressing 2 on your phone or fax keypad when prompted. Then call back to request specific documents. You can order up to three documents per call.

QMS Corporate Bulletin Board System

The QMS Corporate Bulletin Board System (BBS) contains technical support notes, application notes, drivers, patches, and utilities. If you have technical questions that do not require an immediate reply, you may leave them on electronic mail for the Sysop (System Operator).

The bulletin board [(334) 633-3632] operates at 1200, 2400, 9600, and 14400 baud, 8 data bits, no parity, 1 stop bit, with XMODEM, YMODEM, and ZMODEM capabilities. Contact QMS Customer Technical Support for more information about the bulletin board.

CompuServe

Through CompuServe, you can ask general, non-technical questions, share information with other users, and access printing information and programs. When you use CompuServe, `go qmsprint` takes you directly to the forum where QMS is located. The QMS library section contains application notes, drivers, utilities, technical information, and announcement files.

Internet

The QMS server provides access to technical reports, new product announcements, a trade show schedule, and other general information about QMS.

You can access the QMS server via any one of the many web viewers available to Internet users. If you don't have access to a web viewer, we recommend the NCSA Mosaic web viewer (Mosaic is at ftp.ncsa.uiuc.edu). The QMS home page is at http://www.qms.com/. The QMS ftp resource is the ftp.qms.com.

QMS Customer Technical Assurance (CTA)

QMS Customer Technical Assurance is available from 7 am to 6 pm, Central Standard Time, at (334) 633-4500 (US). You can also fax questions to CTA at (334) 633-3716 (US). Please indicate whether you would like a faxed or a phoned reply.

If you call for assistance, have the following information ready so our technicians can help you more quickly:

- Your phone number, fax number, and shipping address
- A description of the problem
- The printer model and serial number
- The type of host computer you are using
- The type and version of operating system you are using
- The interface your are using, and, if serial, the protocol
- The application and version you are using
- The emulation you are using
- Your printer firmware version (listed on status and start-up pages)

QMS National Service Telephone Numbers

1 (800) 762-8894	Call for service information and maintenance pricing for repair of all QMS printers and printers of various other manufacturers
1 (800) 858-1597	On Site Service and Depot Repair Information 7 am to 7 pm Central Time
1 (334) 633-4300 **Extension 2530**	Spare Parts Ordering and Information 8 am to 5 pm Central Time

» *Note: Above numbers are valid in the United States. To contact QMS in other countries, see world-wide office numbers on the next page.*

QMS World-wide Offices

United States/ Latin America	QMS, Inc. One Magnum Pass Mobile, AL 36618 (334) 633-4300 Product Information: (800) 523-2696 OEM Information: (800) 631-2692 Consumables: (800) 777-7782 Fax: (334) 633-4866 E-mail: info@qms.com Latin America Fax: (334) 639-3347
Asia-Pacific	QMS Asia-Pacific Melbourne 61 (3) 899 5777 Sydney 61 (2) 901 3235 Tokyo (81) (3) 3437 4030
Canada	QMS Canada, Inc. 9630 Rte. Trans-Canadienne Saint-Laurent, Québec H4S 1V9 Telephone: (514) 333-5940, (800) 361-3392 Fax: (514) 333-5949 National Service: (800) 268-4969 National Service Fax: (905) 673-7676 Offices in Ottawa, Québec City, Toronto, and Vancouver
Europe, Middle East, Africa	Düsseldorf (49) 211/596 1333 London (44) 1 784 442255 Maarssen (31) 3465 51 333 Paris (33) (1) 4107 9393 Stockholm (46) (8) 725 5680

❖

B

Cable Pinouts

In This Appendix. . .

- LocalTalk pinouts
- Serial pinouts
- IBM PC/XT, PC/AT, and Compatible pinouts
- Centronics pinouts

LocalTalk

The table below gives the correct pinouts for the printer end of the 9-pin LocalTalk cable used to connect a computer and printer. A 9-to-8-pin adapter is included in the kit for the Macintosh end, if needed.

Pin No.	Name
1	Ground
2	No Connection
3	Ground
4	Transmit+
5	Transmit-
6	No Connection
7	Sync
8	Receive +
9	Receive -

Serial

The table below gives the correct pinouts for the printer end of the 25-pin serial cable used to connect a computer and printer:

Pin No.		Name
9-pin cables	25-pin cables	
2	2	Transmit Data
3	3	Receive Data
7	4	Request to Send (optional)
8	5	Clear to Send
6	6	Data Set Ready (optional)
5	7	Signal Ground
	8	Data Carrier Detect
4	20	Data Terminal Ready (optional)
1	24	Reserved
9	25	Reserved

IBM PC/XT, PC/AT, and Compatible Computers

The following table shows the suggested pinouts for serial cables for IBM PC/XT, PC/AT, and compatible computers.

Printer (DB-25S)	IBM PC/XT (DB-25P)	IBM PC/AT
1	1	1 (no connection)
2	3	2
3	4	3
4	5	8
5	4	7
6+8	20	4
7	7	5
20	6+8	1+6

Centronics Parallel

The following table describes the Centronics parallel interface cable that can be used with your printer. (See “Notes to the Centronics Parallel Cable Pinouts Table” on the next page for more information.)

Signal Pin No.	Return Pin No.	Signal	Direction
1	19	STROBE-	In
2	20	DATA 1	In
3	21	DATA 2	In
4	22	DATA 3	In
5	23	DATA 4	In
6	24	DATA 5	In
7	25	DATA 6	In
8	26	DATA 7	In
9	27	DATA 8	In
10	28	ACKNLG-	Out

Signal Pin No.	Return Pin No.	Signal	Direction
11	29	BUSY+	Out
12	30	PE+	Out
13	-	SELECT	Out
16	-	GND	-
18	-	VCC TEST	-
19-30	-	GND	-
31	-	IPRIME	In
32	-	FAULT-	OUT
33	-	GND	-
34	-	RESERVED	-
35	-	RESERVED	-

Notes to the Centronics Parallel Cable Pinouts Table

Direction refers to the direction of signal flow as viewed from the printer.

Return denotes twisted-pair return and is to be connected at signal-ground level. When wiring the interface, be sure to use a twisted-pair cable for each signal and never fail to complete connection on the return side. To prevent noise effectively, these cables should be shielded and connected to the chassis of the system unit and printer, respectively.

All interface conditions are based on TTL level. Both the rise and fall times of each signal must be less than 0.2 microseconds.

Data transfer must be carried out by observing the ACKNLG and BUSY signal.

The cable must have an overall braided shield, Belden 8345 or equivalent.

Connectors must have shielded housings. The overall shield must be bonded to the shielded housings at both ends of the cable.

❖

Index

A

Accounting
- Accounting information on host 3-23
- Copying accounting files 3-21
- Dictionary file 3-11
- Fields, description 3-13
- File format description 3-12
- File transfer protocol 3-23
- Job accounting file 3-11
- Paper accounting file 3-11
- Status accounting file 3-11
- Using the cp command 3-22

Administration menu
- Communications submenu 4-2
- Disk Operations submenu 8-11
- Emulations submenu 5-2
- Engine submenu 8-2
- Memory submenu 7-8
- Miscellaneous submenu 8-9
- Special Pages submenu 6-2
- Startup Options submenu 6-5

Alphanumeric values 1-13

AppleTalk
- Connection 4-16
- Def job prio 4-16
- Min K Spool 4-16
- Mode 4-15

Autowrap 5-13

B

Backup hard disk 8-17
Baud rate 4-7
BitReverse (CCITT command) 5-18
BlockEnd (CCITT command) 5-18
Buffer sizes 1-8
Buffers spooling 7-9

C

Cable pinouts
- Centronics parallel B-3
- IBM PC/AT B-3
- IBM PC/XT B-3
- LocalTalk B-2
- Serial B-2

Calibration page 6-2
CCITT
- Command syntax 5-17
- Commands 5-17

CCITT commands 5-17
- BitReverse 5-18
- BlockEnd 5-18
- Compression 5-18
- DPI 5-19
- EBAMode 5-19
- ImageData 5-20
- ImagePosition 5-20
- ImageSize 5-21
- InvertImage 5-21
- JobEnd 5-22
- LineEnd 5-22
- PageEnd 5-23
- Rotation 5-23

CCITT Emulation 5-17
Chaining input bins 3-7
Clearing maintenance message 8-8
Clock Operations 8-10
Collation 3-4
Command syntax
- CCITT 5-17

Commands
- CCITT 5-17

Communication settings 1-8
Communications
- AppleTalk 4-15
- Parallel 4-11
- Serial 4-5

Communications submenu 4-2
- Emulation timeout 4-4
- ESP timeout 4-4
- Job timeout 4-4
- Optional interface 4-16
- Parallel communications 4-11
- PS wait timeout 4-3
- Serial communications 4-5
- Timeouts 4-3

Compress (CCITT command) 5-18
CompuServe A-3
Configuration menus 1-9
- Administration menu 1-9
- Installation menu 2-2
- Operator Control 3-2

Connection 4-16
Context switching 7-12
Control Panel
- Language 1-8, 2-2

Copies
- Number 3-2

Copying accounting files 3-21
cp command 3-22
Customer Support
- CompuServe A-3
- Internet A-3
- Q-FAX A-2
- QMS Corporate Bulletin Board A-3
- QMS Customer Technical Assurance A-4
- QMS National Service A-4

D

Data bits 4-8, 4-12
Def job prio 4-7, 4-13, 4-16
Default

Changing settings 1-11
Communication settings 4-2
Paper 8-5
Resolution 8-8
Default font 5-5
Default font Index 5-7
Device numbers
Hard disks 8-11
Dictionary file 3-11
Direction B-4
Disk cache 7-13
Disk file 7-5
Disk Operations submenu 8-11
Backup Hard Disk 8-17
Format Disk 8-16
Installing an emulation 8-12
Installing upgrades 1-15
Removing a printer option 8-15
Restore Disk 8-18
Display list 7-12
Do Error Handler 6-6
Do Sys Start 6-5
DPI (CCITT command) 5-19
Duplex 3-3
Pre-punched paper 8-7
Rotate 8-7
Tumble 3-3

E

EBAMode (CCITT command) 5-19
Emulation temporary 7-12
Emulation timeout 4-4
Emulations 4-11, 7-11
CCITT 5-17
ESP default 5-3
HP-GL 5-14
Installing 8-12
Lineprinter 5-11
LN03 Plus 5-8
Optional emulation 5-24
PCL 5 5-4
PostScript 5-10
Removing 8-15
Submenu 5-2
End job 4-7
End job mode 4-12
End of document 4-7, 4-12
Energy Saver 8-8
Engine submenu 8-2
Default paper 8-5
Gamma Correction 8-6
Gamma correction 8-6
Inputbin name 8-5
Letterhead 8-6
Maintenance Due 8-8
Offset Stacking 8-5
Output bin 8-5
Resolution 8-8
Toner Low Action 8-5
Enhanced mode 5-15
Erasing contents of disk 8-16
ESP default option 5-3
ESP timeout 4-4
Expand mode 5-16

F

Factory 1-8
Fields
Accounting 3-13
Firmware 1-8
Flow control
Hardware 4-9
Software 4-8
Transmit software 4-8
Font Cache
PostScript 7-10
Fonts 1-8
Installing 8-12
Removing 8-15
Format disk 8-16
Frame buffer 7-14

H

Hard disks 7-4, 8-11
- Backup 8-17
- Device numbers 8-11
- Formatting 8-16
- Identifying 8-11
- Installation 1-8
- Restoring 8-18

Hardware flow control 4-9
Header inputbin 6-3
Header page 6-3
Hexdump 4-6, 4-12
Host input 7-9
HP-GL
- Enhanced mode 5-15
- Expand mode 5-16
- Origin 5-15
- Paper type 5-16
- Pen width and colors 5-16
- Plotter 5-14
- Reverse image 5-15
- Scaling percent 5-15

I

IBM PC
- AT cable pinouts B-3
- XT cable pinouts B-3

Identification
- Printer 1-8

Identifying hard disks 8-11
Ignore parity 4-8
ImageData (CCITT command) 5-20
ImagePosition (CCITT command) 5-20
ImageSize (CCITT command) 5-21
imPRESS 5-24
Input bins 3-5
- Chaining 3-7

Input buffer sizes 1-8
Installation disk 1-8, 2-2
Installation menu 2-2
Installing
- Emulations 8-12
- Fonts 8-12
- System software 1-15
- Upgrades 1-15

Interfaces
- AppleTalk 4-15
- Network 4-16
- Optional 4-16
- Parallel 4-11
- Serial 4-5

Internet A-3
InvertImage (CCITT command) 5-21

J

Job accounting file 3-11
Job timeout 4-4
JobEnd (CCITT commands) 5-22

K

K Mem Display 7-12
K Mem Emul Temp 7-12
K Mem Emulation 7-11
K Mem Framebuff 7-14
K Mem PS Fonts 7-10
K Mem PS Heap 7-10
Keypad
- Language 1-8, 2-2

Keys
- Next 1-9
- Previous 1-9
- Select 1-9

L

Language
- Keypad 1-8, 2-2
- Message window 2-2

Letterhead printing 8-6
Line termination 5-6
LineEnd (CCITT commands) 5-22
Lineprinter emulation 5-11

Autowrap 5-13
Character map 5-12
CRISCRLF 5-13
FFISCRFF 5-13
Font 5-12
LFISCRLF 5-12
Line numbering 5-12
Lines per page 5-13
Margins 5-13
Orientation 5-13
Point sz 100ths 5-12
Tab stops 5-12
Lines per page 5-13
LN03 Plus 5-8
Autowrap 5-8
Orientation 5-10
Paper Override 5-9
Paper size 5-9
Product ID 5-8
Reset Override 5-9
X-Origin Inset 5-9
Y-Origin Inset 5-9
LocalTalk interface
Cable pinouts B-2

M

Maintenance Due message 8-8
Margins
Lineprinter 5-13
MB Printer Mem 7-14
Memory 7-3
Allocation 1-8, 7-8
Clients 7-2, 7-3, 7-8
Dedicate to an interface 7-9
Definitions 7-3
Disk Cache 7-13
Display list 7-12
Emulation 7-11
Emulation temporary 7-12
K Mem Framebuff 7-14
Management 7-2
MB Printer Mem 7-14
Non-volatile 7-5
Physical 7-5
PS Font Cache 7-10
PS Heap 7-10
Settings 1-8
Storage 7-3
System memory 7-14
Virtual 7-5, 7-10
Volatile 7-4
Memory submenu 7-8
Menus
Configuration 1-9
Installation 2-2
Main 1-9
Operator control 3-2
Message Window
Language 2-2
Min K Spool 4-6, 4-12, 4-16
Miscellaneous submenu 8-9
Clock Operations 8-10
Restore defaults 8-9
Mode 4-6, 4-11, 4-15

N

Naming input bins 8-5
Naming output bins 8-5
Next key 1-9
Non-volatile memory 7-5

O

Operator Control menu 3-2
Chaining input bins 3-7
Collation 3-4
Copies 3-2
Duplex 3-3
Input bin 3-5
Orientation 3-4
Outputbin 3-6
Tumble duplex 3-3
Optional interface communications 4-16

Options
Alphanumeric values 1-13
Installing 8-12
Removing 8-15
Saving changes 1-14
Selection of choices 1-11
Orientation 3-4, 5-13
Origin option 5-15
Output bins 3-6

P

Page orientation 3-4
PageEnd (CCITT command) 5-23
PAP spooling 4-15
Paper accounting file 3-11
Paper tray 3-5
Paper type 5-16
Parallel communications
Data bits 4-12
Def job prio 4-13
Emulation 4-11
End job mode 4-12
Hexdump 4-12
Min K Spool 4-12
Mode 4-11
PS protocol 4-13
Spool timeout 4-12
Parallel interface
Cable pinouts B-3
Parity 4-7
Passwords
Setting 2-3
Using 2-3
PCL 5
Default font 5-5
Default font Index 5-7
Line termination 5-6
Lines per inch 5-5
Point size 5-6
Retain temporary 5-6
Scalable fonts 5-6
Symbol set 5-5
Pen width/colors 5-16
Physical memory 7-5
Pinouts
Centronics parallel B-3
IBM PC B-3
LocalTalk B-2
Serial B-2
pleTalk 4-15
Plotter 5-14
Point size 5-6
PostScript emulation 5-10
PostScript font cache 7-10
PostScript heap 7-10
PostScript level 5-10
PostScript VM 7-10
PostScript wait timeout 4-3
Powersave mode 8-8
Printer identification 1-8
Printer registration 1-5
Printer setup 1-5
PS Font Cache
Ranges 7-11
PS protocol 4-9, 4-13
PS wait timeout 4-3

Q

Q-FAX A-2
QMS Corporate Bulletin Board System A-3
QMS Customer Technical Assurance A-4
QMS DOC 1-6
QMS National Service A-4
QMS World-Wide Offices A-5

R

RAM 7-4
RAM disk 7-4
Record description 3-13, 3-18
Registration 1-5
Removing

Emulations 8-15
Fonts 8-15
Printer options 8-15
Resolution 7-11, 8-8
Restore
Defaults 8-9
Hard disk 8-18
Retain temporary 5-6
Return B-4
Reverse image 5-15
ROM 7-4
Rotate Duplex 8-7
Rotation (CCITT command) 5-23

S

Saving changes 1-14
Scalable fonts 5-6
Scaling percent 5-15
SCSI 7-4
Select key 1-9
Separate print jobs 8-5
Serial communications 4-5
Baud rate 4-7
Data bits 4-8
Def job prio 4-7
Emulation 4-6
End job 4-7
Hardware flow control 4-9
Ignore parity 4-8
Min K Spool 4-6
Mode 4-6
Parity 4-7
PS protocol 4-9
Software flow control 4-8
Spool timeout 4-6
Stop bits 4-8
Serial interface
Cable pinouts B-2
Service, QMS A-4
Setting
Date 8-10
Default resolution 8-8
Time 8-10
Setup 1-5
Shipment contents 1-4
Software 1-8
Software flow control 4-8
Special pages
Calibration page 6-2
Header inputbin 6-3
Header page 6-3
Status page type 6-4
Trailer inputbin 6-4
Trailer page 6-3
Special Pages submenu 6-2
Spool 7-5
Spool buffers 7-9
Spool timeout 4-6, 4-12
Spooling memory 1-8
Start page 6-5
Startup Options 6-5
Do Error Handler 6-6
Do Start Page 6-5
Do Sys Start 6-5
Status accounting file 3-11
Record description 3-18
Status page 1-8
Printing 1-8
Set type 1-9
Types 1-8
Status page type 6-4
Stop bits 4-8
Swap file 7-5
Symbol set 5-5
System failure
Reload system software 1-15
System memory 7-14
System software
Installing 1-15
System use 7-14

T

Temporary emulation 7-12
Timeout settings 1-8

Timeouts
Communications 4-3
Emulation 4-4
ESP 4-4
Job 4-4
PS wait 4-3
Trailer inputbin 6-4
Trailer page 6-3
Tray chaining 3-7
Troubleshooting
QMS Customer Technical Assurance A-4
Tumble duplex 3-3
Typefaces 1-8
Typographic conventions 1-3

U

Upgrades, system software
Installing 1-15
Using file transfer protocol 3-23

V

Vertical offset 8-3
Virtual disk 7-4
Virtual memory 7-5, 7-10
Volatile memory 7-4

❖